CP-5 App. Process Part II - NEPA

SDMS DOCID # 1148156

THE NAVAJO NATION

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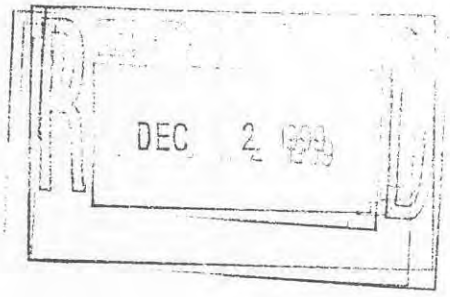

MEMORANDUM

TO: Gloria M. Tom, Director
Navajo Fish & Wildlife Department

THRU: Ray Russell
Ray Russell, Assistant Director
Navajo Abandoned Mine Lands Reclamation Department (NAMLRD)

FROM: Darryl Martinez
Darryl Martinez, Biologist
Navajo Abandoned Mine Lands Reclamation Department (NAMLRD)

DATE: November 30, 1999

SUBJECT: Cameron V Biological Evaluation

Biological surveys have been completed for the Tuba City Field Office (TCFO) of the Navajo Abandoned Mine Lands Reclamation Department (NAMLRD) on the Cameron V Project abandoned uranium sites and vicinity. The surveys were conducted in June of 1998 and July of 1999.

NAMLRD is requesting your concurrence on our recommendation of "no effect" to the Navajo and federally listed threatened and endangered plant and animal species for the Cameron V Project.

Your prompt attention and response would greatly be appreciated. If there are any questions, you can reach me at (520) 871-6584 or you may contact Ernest Greyeyes from the Tuba City field office at (520) 283-3188.

CONCURRENCE

Gloria M. Tom
Gloria M. Tom, Director
Navajo Fish & Wildlife Department

cc: Cameron V File
Attachments

CULTURAL RESOURCES COMPLIANCE FORM
HISTORIC PRESERVATION DEPARTMENT
P O BOX 4950
WINDOW ROCK, ARIZONA 86515

ROUTING: COPIES TO

AZ	SHPO	
XX	REAL PROPERTY MGT/330	
XX	NNAD	

NNHPD NO. HPD-99-790
OTHER PROJECT NO.
AML
NNAD-99-50

PROJECT TITLE: **An Archaeological Survey of the Cameron 5 AML Reclamation Project near Cameron, Arizona**

LEAD AGENCY: Office of Surface Mining/Navajo Abandoned Mine Lands Reclamation

SPONSOR: **Navajo Abandoned Mine Lands Reclamation Department, P O Box 730, Tuba City, Arizona 86045**

PROJECT DESCRIPTION: The proposed undertaking will involve reclamation of 17 abandoned mine areas. These areas include open pits, associated waste rock, and small piles of protore within the surveyed areas. Ground disturbance will be within areas of intensive and extensive impacts. Also, an area above a stock tank is proposed for dredging.

LAND STATUS: Tribal Trust
CHAPTERS: **Cameron, Coal Mine Mesa, Bodaway & Coppermine**
LOCATION: Unplatted & projected T39N, R7E,
T32N, R9E,
T30N, R9E,
T29N, R9E, Section 22 SW/4,
T28N, R9E, Section 1 NE/4,
T28N, R9E, Section 4 NW/4,
Unplatted & projected T27N, R10E, Section 15 SE & 14 SW,
Unplatted & projected T27N, R10E, Section 35 W/2 & 34 E/2,
T28N, R10E, Section 5 N/2,
Unplatted & projected T29N, R10E,
T29N, R9E,
(Stock tank) T26N, R10E, Section 13 NW/4; Coconino County, Arizona G&SRPM&B

PROJECT ARCHAEOLOGIST: **Kerry F. Thompson**
NAVAJO ANTIQUITIES PERMIT NO.: Navajo Nation Code (19 NNC 1001 §302 *et seq.*)

DATE INSPECTED: **4/14, 22 & 26 and 5/10 & 5/14/99**
DATE OF REPORT: revised 11/99
TOTAL ACREAGE INSPECTED: **227**

METHOD OF INVESTIGATION: Class III pedestrian inventory with transects spaced 15 m apart.

LIST OF CULTURAL RESOURCES FOUND:	**(17) Mine sites, (1) Site, (1) Traditional Cultural Property (TCP) & (2) IUSA use Sites (IUSA-B)**
LIST OF ELIGIBLE PROPERTIES:	(1) AZ-N-12-16 (prehistoric component) & (1) TCP
LIST OF NON-ELIGIBLE PROPERTIES:	(17) Mine sites, (1) AZ-N-12-16 (historic component) & (2) IUSA-IUSB
LIST OF ARCHAEOLOGICAL RESOURCES:	(1) AZ-N-12-16 (prehistoric component)

EFFECT/CONDITIONS OF COMPLIANCE: **No historic properties** affected if the following conditions are met.

Site **AZ-N-12-16**, to be avoided:
1) Prior to reclamation, this site will be flagged, and reclamation foreman will be shown the location of this site by a qualified archaeologist.
2) All disturbance within 50 feet of the site boundary will be monitored by a qualified archaeologist.
3) A brief (letter) report documenting the result of monitoring will be submitted to NNHPD, Compliance Section, within 30 days of monitoring.

TCP is the Little Colorado River. Reclamation is for safety measures, and among others, should lessen the incidence of radioactive

materials reaching the LCR.

In the event of a discovery ["discovery" means any previously unidentified or incorrectly identified cultural resources including but not limited to archaeological deposits, human remains, or locations reportedly associated with Native American religious/traditional beliefs or practices], all operations in the immediate vicinity of the discovery must cease, and the Navajo Nation Historic Preservation Department must be notified at (520) 871-7132.

FORM PREPARED BY: James Dryer
FINALIZED: December 1, 1999

Notification to
Proceed Recommended: Yes XX No __
Conditions: Yes XX No __

Alan S. Downer
Navajo Nation Historic Preservation Officer
12-1-99
Date

Navajo Region Approval: Yes X No __

ACTING Regional Director
12-7-99
Date

THE NAVAJO NATION

P. O. BOX 9000 • WINDOW ROCK, ARIZONA 86515 • (520) 871-6000

KELSEY A. BEGAYE
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VICE PRESIDENT

HISTORIC PRESERVATION DEPARTMENT
CULTURAL RESOURCE COMPLIANCE SECTION
P O Box 4950 ◘ Window Rock, Arizona 86515 ◘ 520/871-7132

May 4, 2000

Navajo AML Reclamation Program
P O Box 1875
Window Rock, Arizona 86515

RE: *A Request for an "Addendum to Archaeological Approval" to include Two Radioactive Waste Piles Omitted from the Archaeological Report on 12 Abandoned Uranium Mines near Cameron, Arizona* [HPD-94-069.1]

Dear Mr. S. Deb Misra:

The Cultural Resource Compliance Section of the Navajo Nation Historic Preservation Department (NNHPD) has received and reviewed the above request to include two erroneously omitted radioactive waste piles (NA-0196B & NA-0197B) as addendum to the HPD-94-069/NNAD-92-529 report.

We have reviewed appropriate documents to make a determination of **no historic properties affected**/eligible to the National Register located within the area surveyed (see Figure 4). Accordingly, we authorize this addendum to be integrated as part of the HPD-94-069/NNAD-92-529 report as HPD-94-069.1.

As agent of the Bureau of Indian Affairs (pursuant to Public Law 93-638, archaeological service contract), the NNHPD, with this letter, hereby documents compliance with the Navajo Nation Cultural Resource Protection Act (19 NNC 1021) and consultation with the Navajo Nation Historic Preservation Officer pursuant to Sections 101(a & d), 106(a & d) and 110(a), 2(e)ii of the National Historic Preservation Act.

Should any previously unidentified or incorrectly identified cultural resources including, but not limited to, archaeological deposits, human remains, or locations reportedly associated with Native American religious/traditional beliefs or practices be discovered, all operations in the immediate vicinity must cease and the Navajo Nation Historic Preservation Department must be notified. If you have any questions regarding this matter, please call James Dryer or Ron Maldonado at 871-7132.

Sincerely,

ROSE, 5/8/00
File w/ CP5 folder
(NEPA Section)
Thanks
Ray T.

Alan S. Downer

5.4.00
Date

xc: AZSHPO
desk
file

MAY 2000
TUBA CITY AML
FIELD OFFICE
P.O. BOX 720
TUBA CITY, AZ 86045

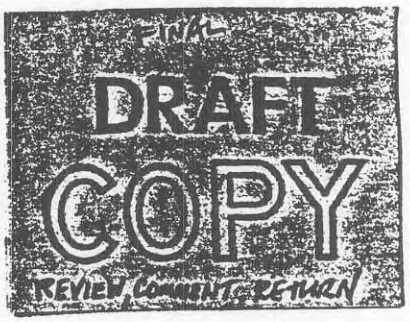
Ray T. 5/8/00

Biological Evaluation

Cameron AML Reclamation Project 5
(Project areas: NA-0101 - 0104, NA-0106 -0110)

Project Sponsor:

Navajo Abandoned Mine Lands Reclamation Department
(Tuba City Field Office)
Contact: Ernest Greyeyes
P.O. Box 730
Tuba City, Arizona 86045
Phone: (505) 283-3188
(520) 853-1892



Author:

Biological Survey Services Program
Project Biologist: Debra A. Yazzie
P.O. Box 1480
Window Rock, Arizona 86515
Phone: (520) 871-6472

SEPTEMBER 1998

BSSP Report number: 98-01-001

Federal Fish & Wildlife Permit Number:

PRT-800684

I. Description of the Action

The Navajo Abandoned Mine Lands Reclamation Department (NAMLRD), Tuba City AML Field Office, has received a construction grant from the Office of Surface Mining Reclamation and Enforcement (OSMRE) to reclaim certain abandoned uranium mine lands within the Cameron, Bodaway and Coalmine chapters. NAMLRD labeled this project as "Cameron AML Reclamation Project 5":

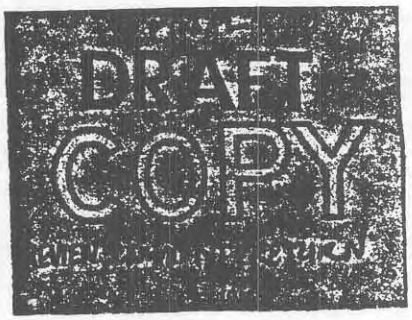
NA-0101- 0104 thru NA-0106 - 0110

These abandoned uranium mines pose a serious health and safety hazard to the people, livestock and wildlife which inhabit and use rangeland located on or near the mines. Several different types of mine features occur in these project areas, they are: Open adios, Open pits, Partially Collapsed Adios, Rimstrips, Collapse Adios, Partially Backfilled Adios, Partially Backfilled Vertical Shafts, High walls, Trenches, and mine waste. It is the goal of the NAMLRD to reclaim these hazardous abandoned uranium mines by backfilling, bulk heading, installing drainage diversions, regrading, top soiling and partial revegetation of project areas to the extent possible.

II. Description of the Environment

Project	Location	Ac	Habitat	*Geology;Soil Type
NA-0101	SW/4, Section 01, T39N, R07E	10	Desertscrub	Chinle Form;Shinar
NA-0102	NW/4, Section 26, T32N, R09E	14	Desertscrub	Chinle Form;Shinar
NA-0103	SW/4, Section 22, T32N; R09E	41	Desertscrub	Chinle Form;Shinar
NA-0104	NE/4, Section 22, T30N, R09E	19	Desertscrub	Chinle Form;Shinar
NA-0106	SW/4, Section 22, T29N, R09E	18	Desertscrub	Chinle Form;Shinar
NA-0107	NE/4, Section 01, T28N, R09E	5.5	Desertscrub	Chinle Form;Shinar
NA-0108	NW/4, Section04, T28N, R09E	18	Desertscrub	Chinle Form;Shinar
NA-0109	SE/4, Section 15, T27N, R10E	21	Desertscrub	Chinle Form;Pertif
NA-0110	SW/4, Section 35, T27N, R10E	10	Desertscrub	Chinle Form;Pertif

*Geology: Chinle Formation is a sandstone; Soil Type: Shinarump member is light gray to yellowish gray sandstone and conglomerate. Petrified Forest member is claystone, siltstone, and minor amounts of sandstone.



III. Species list and Status

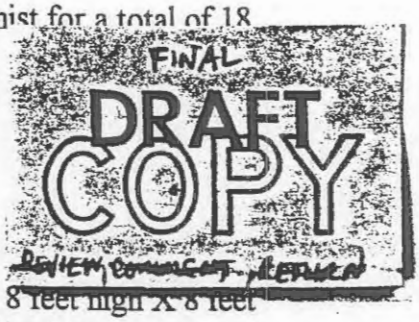
The following species are the subject of this biological evaluation:

Amsonia peeblesii (Peebles blue-star).
Asclepias cutleri (Cutler milkweed)
Asclepias welshii (Welsh's milkweed); NESL group 4; ESA threatened

topographic base map and,

7) determining if potential habitat exists for the listed species and if a revisit is necessary.

The survey took place on 2 occasions by a wildlife biologist and botanist for a total of 18 hours.



V. Survey Results (June 1 and 2, 1998)

Project area NA-0101

Within this project are sites 5 and 6. Site 5 features 1 portal which is 8 feet high X 8 feet wide and 30 feet deep. The work to be completed on this site is to bulkhead it. The access road is estimated to be 0.3 miles long and there is no waste to be moved. At site 6, there is one portal which is 5 feet high X 6 feet wide and an unknown depth. The work to be completed on this site is to bulkhead it. The access road is estimated to be 0.3 miles long and there is no waste to be moved.

0.5 mile east of the project site is Echo cliffs which are approximately 1,000 feet high. The project sites are up and at the edge of an unnamed canyon. The southern access road gradually weaves up the side of the canyon. This road is severely eroded and capable of causing bodily damage if precautions are not taken when improving this road. No sign of usage of the southern portal by animals could be seen. No attempt was made to search the portal due to the dangerous conditions both inside and outside. No listed plants were found within the area.

The northern access road goes directly up to the portal. This site was not as treacherous as the southern site. No sign of animal usage or listed plants were found within the site.

Project area NA-0102

Within this project are sites 24, 25, 26, 27, 28, 29 and 30. Below is a chart of site specific features:

Site	Feature/size	Waste	Haul road	Work
site 24	1 open pit - 42' x 12' x 7'	1000 yd^3	n/a	backfill open pit
site 25	1 vertical - 18' dia x 14'	none	n/a	seal w/ cement
site 26	1 vertical - 20' x 18' x 14'	none	n/a	seal
site 27	1 vertical - 18' dia x 11'	none	n/a	seal
site 28	1 rim strip - 50' x 15' x 7'	224 yd^3	n/a	backfill
site 29	1 open pit - 25' x 15' x 6'	100 yd^3	n/a	backfill
site 30	1 open pit - 40' x 15' x 9'	275 yd^3	n/a	backfill

The project area is located near the north bank of Moenkopi Wash. The access road is heavily used by the local residence and is in good condition. No standing water lined the open pits and no bird's nest were found on the rim strip. No listed plants were found within the project area.

Project area NA-0106

Within this project are sites 26a, 26b, 26c, 26d, and 26e. Below is a chart of site specific features:

Site	Feature/size	Waste	Haul road	Work
site 26a	1 rim strip 75' x 50' x 5'	2,018 yd^3	0.8 mile	backfill
site 26b	1 rim strip 28' x 8' x 4'	92 yd^3	none	backfill
site 26c	1 rim strip 15' x 20' x 6"	68 yd^3	none	backfill
site 26d	1 rim strip 20' x 5' x 4'	24 yd^3	none	backfill
site 26e	1 rim strip 20' x 20' x 5'	78 yd^3	none	backfill

Project area 106 is located north of a residential area. Most of the area is disturbed by grazing, vehicles and illegal trash dumping. The vegetative cover is sparse, no bird's nest were found on the rim stripped areas and on the Little Colorado River gorge side walls. No threatened or endangered species were found. However a listed plant, *Amsonia peeblesii*, was found within the project area.

Project area NA-0107

Project area 107 is a 170 feet long x 50 feet wide x 15 feet deep rim strip with 13 drill holes. It has 3,483 cubic yards of waste and no haul road. The surrounding habitat has very little vegetation (shadscale plants dead). The type of work to be done at this area is to first backfill it with the waste then place non-radioactive dirt on top. South of the area is a small drainage which leads to the Little Colorado River. No threatened or endangered species were found in or around the area.

Project area NA-0108

Within this project area are sites 47a and 47b. Site 47a has two rim strip areas measuring 140 feet long x 15 feet wide x 3 feet deep and 25 feet long x 50 feet wide x 3 feet deep. It also has an area which received disturbance from a dozer scraping an area 110 feet long x 132 feet wide (2,350 yd^3 of waste exist). Site 47b also received disturbance from a dozer scraping an area 125 feet long x 275 feet wide including some shallow excavations (4,030 yd^3 of waste exist). The type of work to be done at this area is to first backfill it with the waste then place non-radioactive

areas.

VIII. Alternatives

No alternatives are suggested with the reclamation of all the project areas.

IX. Conclusion

BSSP recommends a no effect to the listed threatened or endangered plant and animals species with the reclamation of Project areas NA-101 thru NA-104 and NA-106 thru NA-110.

X. Personnel

Daniela Roth - Botanist, Navajo Natural Heritage Program, Navajo Fish & Wildlife Department.

Debra A. Yazzie-Four years of Biological Evaluation experience on Navajo Nation; B.S., Zoology; Five years, Navajo Fish & Wildlife Department. Protocol training-Mexican Spotted Owl, Southwestern Willow Flycatcher, Wetland Delineation Training.

XI. Certification

I, Debra A. Yazzie, Wildlife Biologist, Navajo Fish & Wildlife Department, am responsible for the content of this report entitled: "Cameron AML Reclamation Project 5 (Project areas: NA-0101 - 0104, NA-0106 - 0110)" and duly certify that all information is true.

Signature:_____ Date:_____

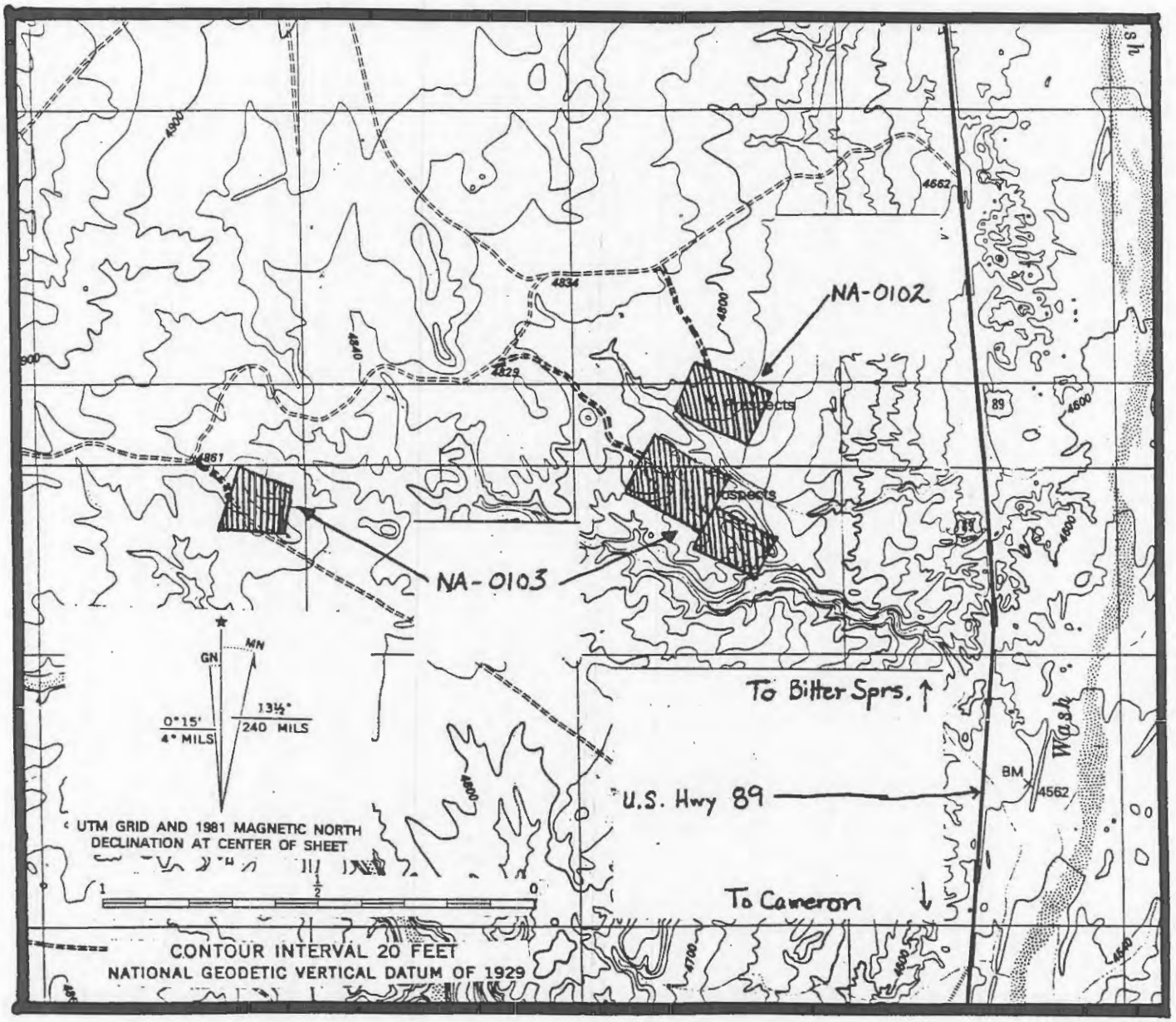
XII. Coordination and consultation

Ernest Greyeyes -requestor, Cameron AML Reclamation Project 5, Cameron, AZ.

Annette Nystedt -Data manager, Navajo Natural Heritage Program, Navajo Fish & Wildlife Department. Contacted for Information Request (IR).

John Meyer -Program manager, Navajo Natural Heritage Program, Navajo Fish & Wildlife Department. Biological Evaluation Report content review.

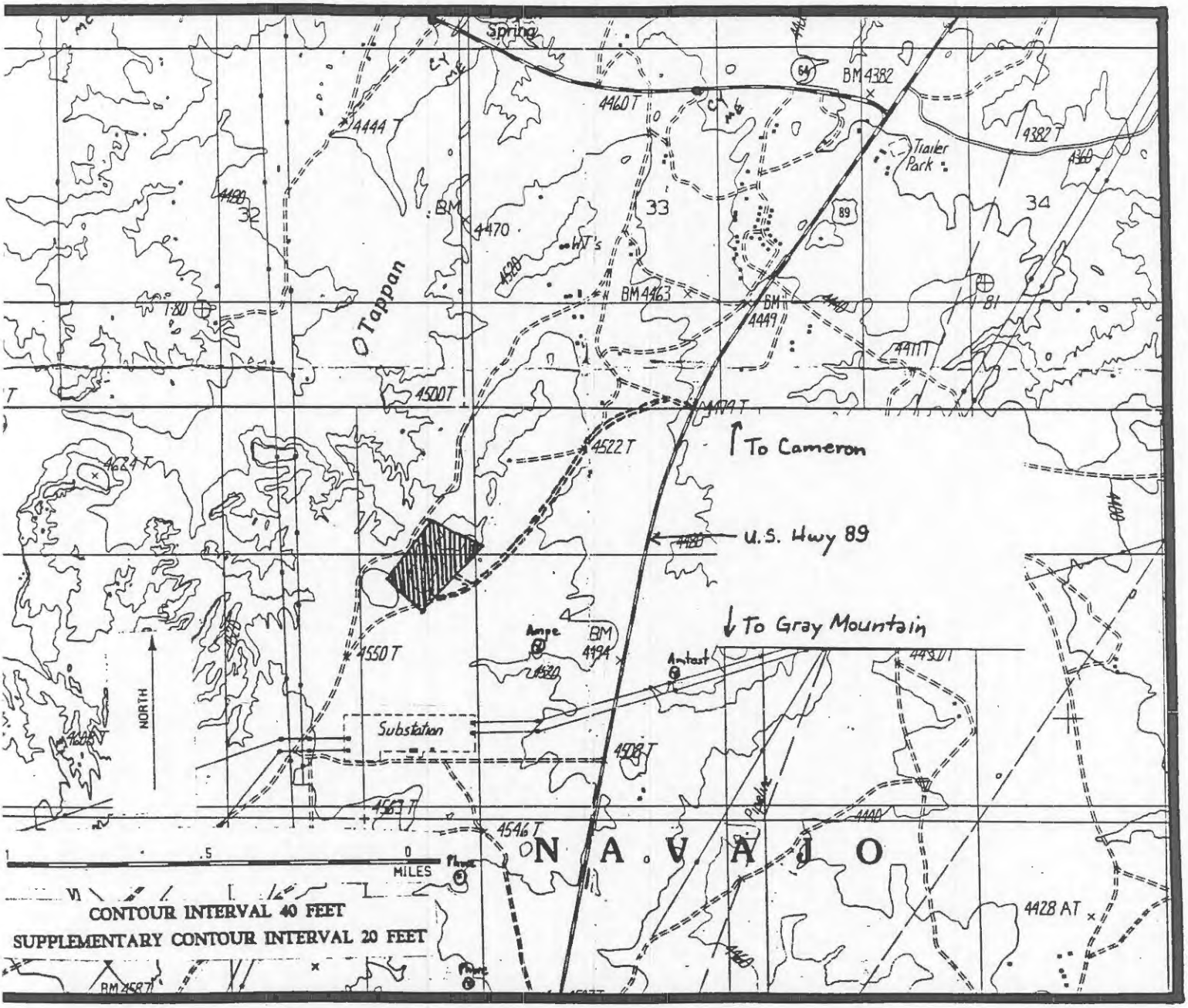
Figure 2
Cameron AML Reclamation Project 5
(B.S.S.P. report no.: 98-01-001)



Legend
Proposed mine site
road
building
access road

Map name: Willow Springs and Shadow Mtn. Well, Arizona (1981/1982)
Map scale: 1:24,000 (U.S.G.S. 7.5 minute topographical map)
NNHP map number: 3611124 / 3611114

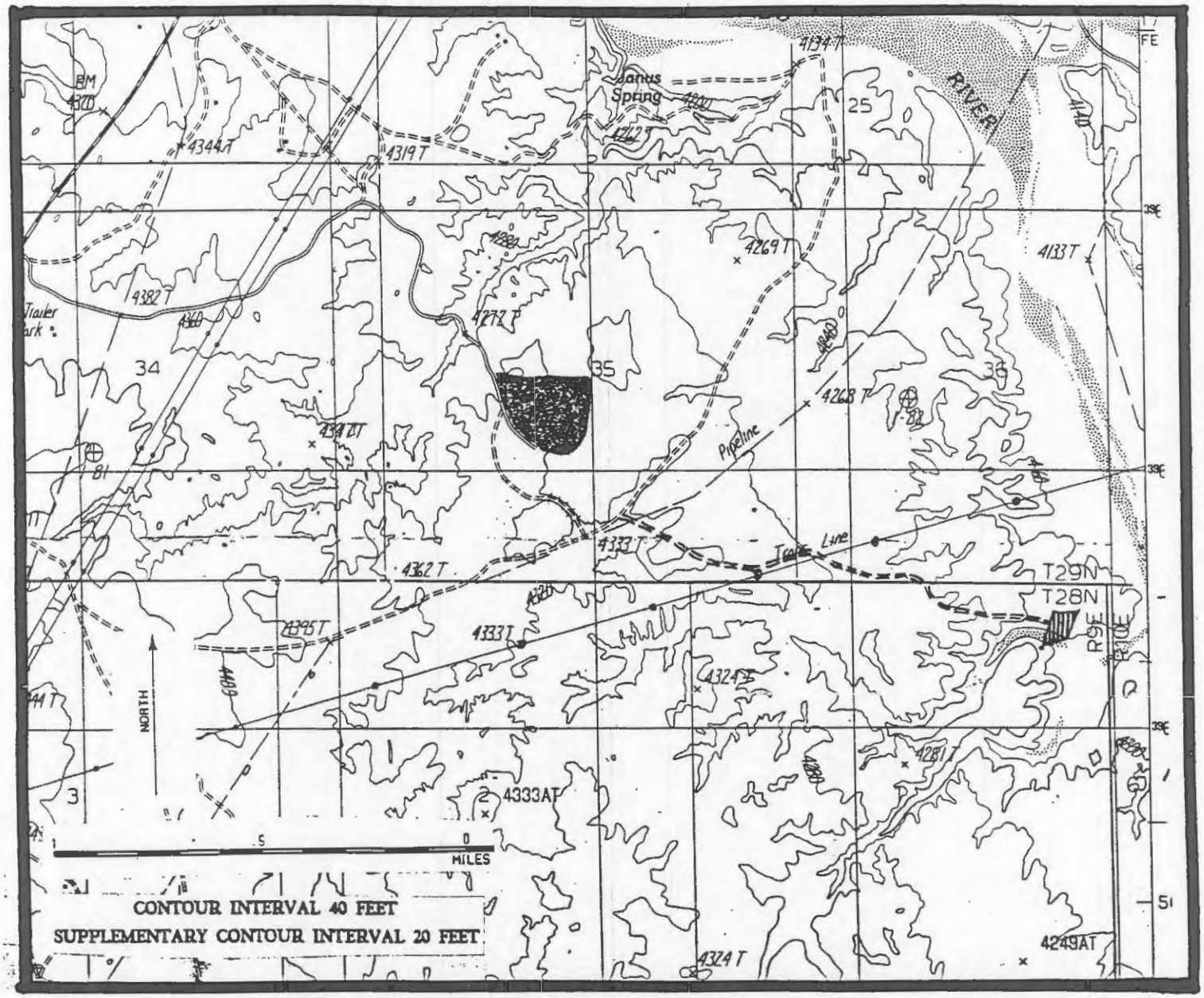
Figure 4
Cameron AML Reclamation Project 5
(B.S.S.P. report no.: 98-01-001)



Legend
Proposed mine site NA-0108 building
road access road

Map name: Cameron South, Arizona (1988)
Map scale: 1:24,000 (U.S.G.S. 7.5 minute topographical map)
NNHP map number: 3511174

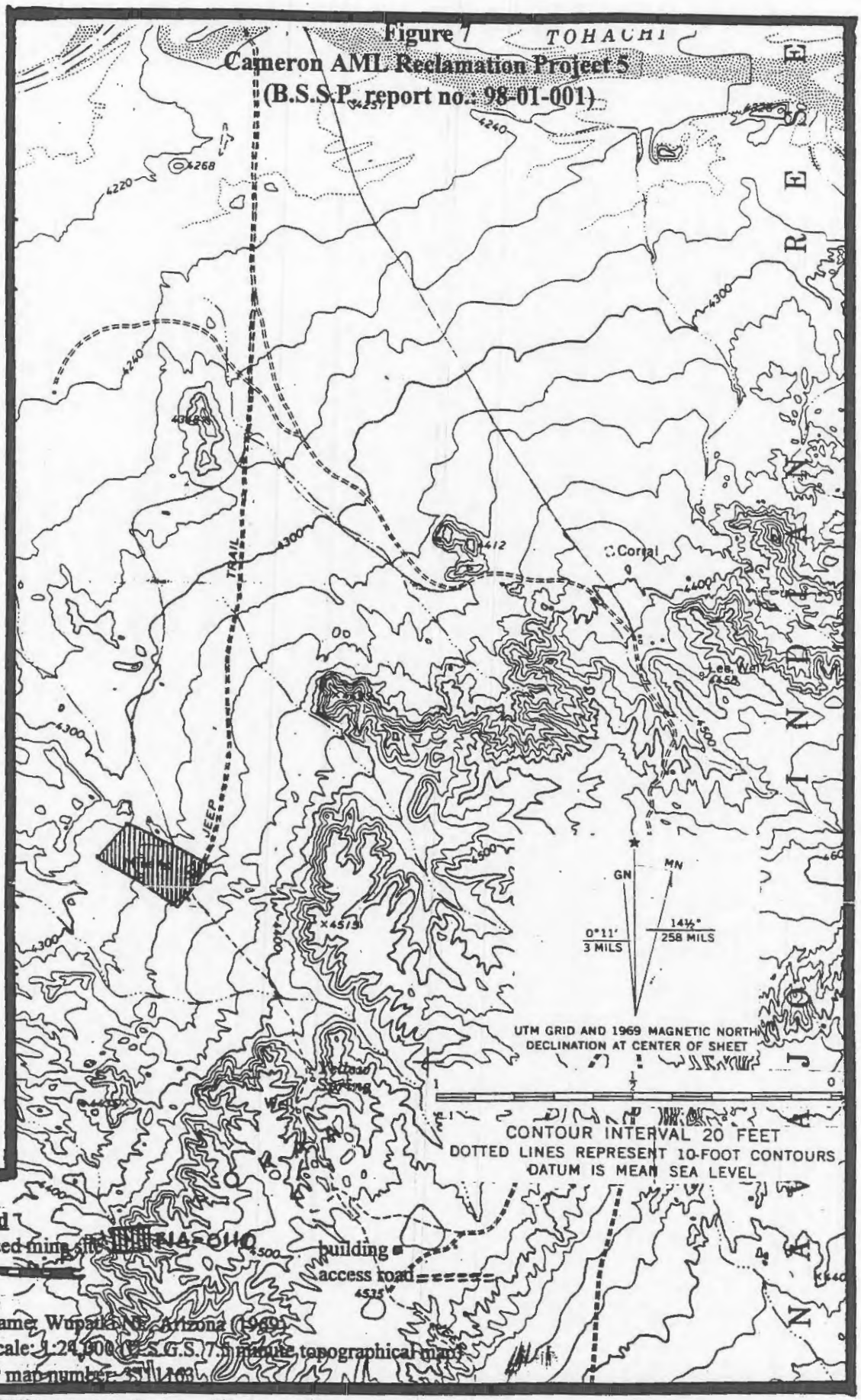
Figure 5
Cameron AML Reclamation Project 5
(B.S.S.P. report no.: 98-01-001)



Legend
Proposed mine site NA-0107 building
road access road

Map name: Cameron South, Arizona (1988)
Map scale: 1:24,000 (U.S.G.S. 7.5 minute topographical map)
NNHP map number: 3511174

Figure 7
Cameron AML Reclamation Project 5
(B.S.S.P. report no.: 98-01-001)



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VICE PRESIDENT

May 21, 1999

Debra Yazzie, Biologist
Navajo Fish & Wildlife Department
Attn: Biological Survey Services Program
P.O. Box 1480
Window Rock, Arizona 86515

SUBJECT: Reclamation of Cameron 4 and Cameron 5 AML Projects

Ms. Yazzie;

The following information on species of concern[1] is provided in response to your 20 May 1999 request concerning the subject project, which consists of reclamation of 29 abandon uranium mines located along Highway 89 beginning with the furthest northern site near Marble Canyon and extending south to the vicinity of Cameron, Arizona and eastward along the Little Colorado River.

At this time, the Navajo Fish and Wildlife Department (NFWD) has no record of species of concern occurring on the project sites.

Each 7.5-minute quadrangle containing project boundaries is addressed separately below. These species lists are quadrangle-specific rather than project-specific. Potential for species has been determined primarily on quadrangle-wide coarse habitat characteristics and species range information. Your project biologist should determine habitat suitability at the project sites.

A total of 33 species are identified in the quadrangle-specific lists. They are:

1. Amsonia peeblesii (Peebles' blue-star).
2. Amsonia tomentosa var. stenophylla (narrowleaf blue star).
3. Antilocapra americana americana (pronghorn); NESL group 3.
4. Aquila chrysaetos (Golden Eagle); NESL group 3; MBTA; EPA.
5. Astragalus sophoroides (Painted Desert milk-vetch).
6. Buteo regalis (Ferruginous Hawk); NESL group 3; MBTA.
7. Catostomus discobolus (bluehead sucker); NESL group 4.
8. Catostomus latipinnis (flannelmouth sucker); NESL group 4.
9. Cinclus mexicanus (American Dipper); NESL group 3; MBTA.

---

[1] "Species of concern" include protected, candidate, and other rare or otherwise sensitive species, including certain native species and species of economic or cultural significance. For each species, the following tribal and federal statuses are indicated: Navajo Endangered Species List (NESL), federal Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), and Eagle Protection Act (EPA). No legal protection is afforded species with **only** ESA candidate or NESL group 4 status; please be aware of these species during surveys and inform the NFWD of observations. Documentation that these species are more numerous or widespread than currently known, and addressing these species in project planning and management is important for conservation and may contribute to ensuring they will not be uplisted in the future. Species without ESA or NESL legal protection (e.g., NESL group 4 species) are only included in responses on an irregular basis and may not be included in this response. Please refer to the NESL for a list of group 4 species; contact me if you need a copy.

10. Cryptantha atwoodii (Atwood's catseye).
11. Cymopterus megacephalus (bighead water parsnip).
12. Dipodomys microps leucotis (Marble Canyon kangaroo rat); NESL group 4.
13. Empidonax traillii extimus (Southwestern Willow Flycatcher); NESL group 2; ESA endangered; MBTA.
14. Errazurizia rotundata (round dunebroom); NESL group 4.
15. Falco peregrinus (Peregrine Falcon); NESL group 3; ESA endangered; MBTA.
16. Gila cypha (humpback chub); NESL group 2; ESA endangered.
17. Haliaeetus leucocephalus (Bald Eagle); NESL group 3; ESA threatened; MBTA; EPA.
18. Lanius ludovicianus (Loggerhead Shrike); MBTA.
19. Lampropeltis triangulum (milk snake); NESL group 4.
20. Mustela nigripes (black-footed ferret); NESL group 2; ESA endangered. Potential for the black-footed ferret should be evaluated if prairie-dog towns of sufficient size (per NFWD guidelines) occur in the project area.
21. Ovis canadensis nelsoni (desert bighorn sheep); NESL group 3.
22. Oxyloma haydeni kanabensis (Kanab ambersnail); NESL group 4; ESA endangered.
23. Perognathus amplus ammodytes (Navajo pocket mouse).
24. Pediocactus bradyi (Brady pincushion cactus); NESL group 2; ESA endangered.
25. Pediocactus peeblesianus var. fickeiseniae (Fickeisen plains cactus); NESL group 3; ESA candidate.
26. Phacelia welshii (Welsh phacelia); NESL group 4.
27. Psorothamnus arborescens var. pubescens (Mohave dalea).
28. Puccinellia parishii (Parish's alkali grass); NESL group 2.
29. Rana pipiens (northern leopard frog); NESL group 3.
30. Rhinichthys osculus (speckled dace).
31. Sauromalus obesus (chuckwalla); NESL group 4.
32. Xyrauchen texanus (razorback sucker); NESL group 2; ESA endangered.
33. Waterfowl - LCR

CAMERON NORTH, AZ QUADRANGLE
(CAMERON 4 AML)

Project No: NA - 0124 **NA - 0131**

At this time, the (NFWD) has no record of species of concern occurring on the project sites.

Species of concern known to occur within three miles of the project sites include:
1. Aquila chrysaetos
2. Perognathus amplus ammodytes
3. Phacelia welshii

Additional species of concern with potential to occur on the 7.5-minute quadrangle include:
4. Antilocapra americana americana
5. Buteo regalis
6. Catostomus latipinnis
7. Cinclus mexicanus
8. Empidonax traillii extimus
9. Falco peregrinus
10. Gila cypha

11. Haliaeetus leucocephalus
12. Mustela nigripes
13. Rana pipiens
14. Xyrauchen texanus
15. Amsonia peeblesii
16. Astragalus sophoroides
17. Amsonia peeblesii
18. Waterfowl - LCR

CAMERON SOUTH, AZ QUADRANGLE
(CAMERON 4 AML)

Project No: NA - 0134

At this time, the Navajo Fish and Wildlife Department (NFWD) has no record of species of concern occurring on the project sites.

Species of concern known to occur within three miles of the project sites include:
1. Perognathus amplus ammodytes
2. Phacelia welshii

Additional species of concern with potential to occur on the 7.5-minute quadrangle include:
3. Antilocapra americana americana
4. Aquila chrysaetos
5. Buteo regalis
6. Catostomus discobolus
7. Cinclus mexicanus
8. Empidonax traillii extimus
9. Falco peregrinus
10. Haliaeetus leucocephalus
11. Lampropeltis triangulum
12. Mustela nigripes
13. Rana pipiens
14. Rhinichthys osculus
15. Amsonia peeblesii
16. Amsonia tomentosa var. stenophylla
17. Cymopterus megacephalus
18. Astragalus sophoroides
19. Errazurizia rotundata
20. Waterfowl - LCR

CAMERON SE, AZ QUADRANGLE
(CAMERON 4 AML)

Project No: NA - 0137

At this time, the (NFWD) has no record of species of concern occurring on the project site.

Species of concern with potential to occur on the 7.5-minute quadrangle include:

1. Antilocapra americana americana
2. Aquila chrysaetos
3. Buteo regalis
4. Catostomus discobolus
5. Empidonax traillii extimus
6. Falco peregrinus
7. Haliaeetus leucocephalus
8. Mustela nigripes
9. Rana pipiens
10. Astragalus sophoroides
11. Errazurizia rotundata
12. Amsonia peeblesii
13. Waterfowl - LCR

WUPAKINE, AZ QUADRANGLE
(CAMERON 4 AML)

Project No:	**NA - 0184**	**NA - 0186**
	NA - 0187	**NA - 0194**
	NA - 0195	**NA - 0196**
	NA - 0197	**NA - 0198**

At this time, the Navajo Fish and Wildlife Department (NFWD) has no record of species of concern occurring on the project sites.

Species of concern known to occur within three miles of the project sites include:

1. Lanius ludovicianus

Additional species of concern with potential to occur on the 7.5-minute quadrangle include:

2. Antilocapra americana americana
3. Aquila chrysaetos
4. Buteo regalis
5. Empidonax traillii extimus
6. Falco peregrinus
7. Haliaeetus leucocephalus
8. Lanius ludovicianus
9. Mustela nigripes
10. Rana pipiens
11. Pediocactus peeblesianus var. fickeiseniae
12. Amsonia peeblesii
13. Errazurizia rotundata
14. Astragalus sophoroides
15. Amsonia tomentosa var. stenophylla

LEES FERRY, AZ QUADRANGLE
(CAMERON 5 AML)

Project No: NA - 0101

At this time, the (NFWD) has no record of species of concern occurring on the project sites.

Species of concern known to occur within three miles of the project sites include:
1. Aquila chrysaetos
2. Dipodomys microps leucotis
3. Empidonax traillii extimus
4. Perognathus amplus ammodytes
5. Pediocactus bradyi
6. Sauromalus obesus

Additional species of concern with potential to occur on the 7.5-minute quadrangle include:
7. Catostomus discobolus
8. Catostomus latipinnis
9. Cinclus mexicanus
10. Falco peregrinus
11. Gila cypha
12. Haliaeetus leucocephalus
13. Mustela nigripes
14. Ovis canadensis nelsoni
15. Oxyloma haydeni kanabensis
16. Rana pipiens
17. Rhinichthys osculus
18. Xyrauchen texanus
19. Amsonia tomentosa var. stenophylla
20. Psorothamnus arborescens var. pubescens

WILLOW SPRINGS, AZ QUADRANGLE
(CAMERON 5 AML)

Project No: NA - 0102

At this time, the (NFWD) has no record of species of concern occurring on the project sites.

Species of concern known to occur within three miles of the project sites include:
1. Cryptantha atwoodii
2. Cymopterus megacephalus
3. Errazurizia rotundata
4. Puccinellia parishii

Additional species of concern with potential to occur on the 7.5-minute quadrangle include:
5. Aquila chrysaetos
6. Buteo regalis
7. Empidonax traillii extimus

8. Falco peregrinus
9. Mustela nigripes
10. Rana pipiens
11. Astragalus sophoroides
12. Amsonia peeblesii
13. Pediocactus peeblesianus var. fickeiseniae
14. Phacelia welshii

SHADOW MTN. WELL, AZ QUADRANGLE
(CAMERON 5 AML)

Project No: NA - 0103 A & B

At this time, the (NFWD) has no record of species of concern occurring on the project sites.

Species of concern known to occur within three miles of the project sites include:
1. Errazurizia rotundata
2. Cymopterus megacephalus
3. Puccinellia parishii

Additional species of concern with potential to occur on the 7.5-minute quadrangle include:
4. Aquila chrysaetos
5. Buteo regalis
6. Empidonax traillii extimus
7. Mustela nigripes
8. Amsonia peeblesii
9. Amsonia tomentosa var. stenophylla
10. Astragalus sophoroides
11. Pediocactus peeblesianus var. fickeiseniae
12. Phacelia welshii

CAMERON NORTH, AZ QUADRANGLE
(CAMERON 5 AML)

Project No: NA - 0104 **NA - 0106**

At this time, the (NFWD) has no record of species of concern occurring on the project sites.

Species of concern known to occur within one mile of the project sites include:
1. Perognathus amplus ammodytes
2. Phacelia welshii

Species of concern known to occur within three miles of the project sites include:
3. Amsonia peeblesii
4. Amsonia tomentosa var. stenophylla
5. Aquila chrysaetos
6. Rana pipiens

Additional species of concern with potential to occur on the 7.5-minute quadrangle include:
7. Antilocapra americana americana
8. Buteo regalis
9. Catostomus latipinnis
10. Cinclus mexicanus
11. Empidonax traillii extimus
12. Falco peregrinus
13. Gila cypha
14. Haliaeetus leucocephalus
15. Mustela nigripes
16. Rana pipiens
17. Xyrauchen texanus
18. Astragalus sophoroides
19. Errazurizia rotundata
20. Waterfowl - LCR

CAMERON SOUTH, AZ QUADRANGLE
(CAMERON 5 AML)

Project No: NA - 0107
NA - 0108

At this time, the (NFWD) has no record of species of concern occurring on the project sites.

Species of concern known to occur within three miles of the project sites include:
1. Amsonia peeblesii
2. Amsonia tomentosa var. stenophylla
3. Perognathus amplus ammodytes
4. Phacelia welshii
5. Rana pipiens

Additional species of concern with potential to occur on the 7.5-minute quadrangle include:
6. Antilocapra americana americana
7. Aquila chrysaetos
8. Buteo regalis
9. Catostomus discobolus
10. Cinclus mexicanus
11. Empidonax traillii extimus
12. Falco peregrinus
13. Haliaeetus leucocephalus
14. Lampropeltis triangulum
15. Mustela nigripes
16. Rhinichthys osculus
17. Astragalus sophoroides
18. Cymopterus megacephalus
19. Errazurizia rotundata
20. Waterfowl - LCR

WUPATKI NE, AZ QUADRANGLE
(CAMERON 5 AML)

Project No: NA - 0109
NA - 0110 A & B

At this time, the (NFWD) has no record of species of concern occurring on the project sites.

Species of concern known to occur within three miles of the project sites include:
1. Lanius ludovicianus

Additional species of concern with potential to occur on the 7.5-minute quadrangle include:
2. Antilocapra americana americana
3. Aquila chrysaetos
4. Buteo regalis
5. Empidonax traillii extimus
6. Falco peregrinus
7. Haliaeetus leucocephalus
8. Mustela nigripes
9. Rana pipiens
10. Pediocactus peeblesianus var. fickeiseniae
11. Amsonia peeblesii
12. Errazurizia rotundata
13. Astragalus sophoroides
14. Amsonia tomentosa var. stenophylla

CAMERON SE, AZ QUADRANGLE
(CAMERON 5 AML)

Project No: NA - 0111

At this time, the (NFWD) has no record of species of concern occurring on the project site.

Species of concern with potential to occur on the 7.5-minute quadrangle include:
1. Antilocapra americana americana
2. Aquila chrysaetos
3. Buteo regalis
4. Catostomus discobolus
5. Empidonax traillii extimus
6. Falco peregrinus
7. Haliaeetus leucocephalus
8. Mustela nigripes
9. Rana pipiens
10. Astragalus sophoroides
11. Errazurizia rotundata
12. Amsonia peeblesii
13. Waterfowl - LCR

CAMERON NE, AZ QUADRANGLE
(CAMERON 5 AML)

Project No: NA - 0121 NA - 0122
NA - 0131A

At this time, the (NFWD) has no record of species of concern occurring on the project sites.

Species of concern known to occur within three miles of the project sites include:
1. Perognathus amplus ammodytes
2. Phacelia welshii

Additional species of concern with potential to occur on the 7.5-minute quadrangle include:
3. Antilocapra americana americana
4. Aquila chrysaetos
5. Buteo regalis
6. Empidonax traillii extimus
7. Falco peregrinus
8. Mustela nigripes
9. Astragalus sophoroides
10. Amsonia peeblesii
11. Amsonia tomentosa var. stenophylla
12. Errazurizia rotundata

CAMERON NORTH, AZ QUADRANGLE
(CAMERON 5 AML)

Project No: NA - 0124B NA - 0124C

At this time, the (NFWD) has no record of species of concern occurring on the project sites.

Species of concern known to occur within three miles of the project sites include:
1. Perognathus amplus ammodytes
2. Phacelia welshii

Additional species of concern with potential to occur on the 7.5-minute quadrangle include:
3. Antilocapra americana americana
4. Aquila chrysaetos
5. Buteo regalis
6. Catostomus latipinnis
7. Cinclus mexicanus
8. Empidonax traillii extimus
9. Falco peregrinus
10. Gila cypha
11. Haliaeetus leucocephalus
12. Mustela nigripes
13. Rana pipiens
14. Xyrauchen texanus

15. Amsonia peeblesii
16. Waterfowl - LCR

Biological surveys should be conducted during the appropriate season. Surveyors on the Navajo Nation must be permitted by the Director, NFWD. Contact Jeff Cole at (520) 871-7068 for permitting procedures. Questions pertaining to surveys should be directed to the NFWD Zoologist (David Mikesic) for animals at 871-7638, and Botanist (Daniela Roth) for plants at 871-7639.

On 21 March 1994 (Federal Register, Vol. 59, No. 54) the U.S. Fish and Wildlife Service designated Critical Habitat along portions of the Colorado and Little Colorado Rivers (LCR) for Gila cypha (humpback chub). Within or adjacent to the Navajo Nation this critical habitat includes the LCR and its 100-year floodplain from river mile 8 in T32N R6E, sec. 12 (Salt and Gila River Meridian) to its confluence with the Colorado River in T32N R5E sec. 1 (S&GRM) and the Colorado River and 100-year floodplain from Nautuloid Canyon (River Mile 34) T36N R5E sec. 35 (S&GRM) to its confluence with the LCR. All actions carried out, funded or authorized by a federal agency which may alter the constituent elements of Critical Habitat must undergo section 7 consultation under the Endangered Species Act of 1973, as amended. Constituent elements are those physical and biological attributes essential to a species conservation and include, but are not limited to, water, physical habitat, and biological environment as required for each particular life stage of a species.

Also of concern are impacts to any **wetland or riparian habitats** and their associated species, such as those of Little Colorado River.

Potential impacts to **wetlands** should also be evaluated. The U.S. Fish & Wildlife Service's National Wetlands Inventory (NWI) maps should be examined to determine whether areas classified as wetlands are located close enough to the project site(s) to be impacted. In cases where the maps are inconclusive (e.g., due to their small scale), field surveys must be completed. For field surveys, wetlands identification and delineation methodology contained in the "Corps of Engineers Wetlands Delineation Manual" (Technical Report Y-87-1) should be used. When wetlands are present, potential impacts must be addressed in an environmental assessment and the Army Corps of Engineers, Phoenix office, must be contacted. NWI maps are available for examination at the NFWD's Natural Heritage Program (NHP) office, or may be purchased through the U.S. Geological Survey (order forms are available through the NHP). The NHP has complete coverage of the Navajo Nation, excluding Utah, at 1:100,000 scale; and coverage at 1:24,000 scale in the southwestern portion of the Navajo Nation.

The information in this report was identified by the NFWD's biologists and computerized database, and is based on current data. It should not be regarded as the final statement on the occurrence of any species, nor should it substitute for on-site surveys. Also, because the NFWD's information is continually updated, any given information response is only wholly appropriate for its respective request.

If you have any questions I may be reached at (520) 871-7603.

Brent Nelson

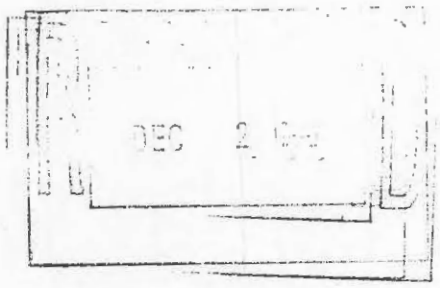
Brent Nelson, Data Manager
Natural Heritage Program
Navajo Fish and Wildlife Department

xc: file/chrono

THE NAVAJO NATION

KELSEY A. BEGAYE
PRESIDENT

TAYLOR McKENZIE, M.D.
VICE PRESIDENT



MEMORANDUM

TO: Gloria M. Tom, Director
Navajo Fish & Wildlife Department

THRU: _____
Ray Russell, Assistant Director
Navajo Abandoned Mine Lands Reclamation Department (NAMLRD)

FROM: _____
Darryl Martinez, Biologist
Navajo Abandoned Mine Lands Reclamation Department (NAMLRD)

DATE: November 30, 1999

SUBJECT: Cameron V Biological Evaluation

Biological surveys have been completed for the Tuba City Field Office (TCFO) of the Navajo Abandoned Mine Lands Reclamation Department (NAMLRD) on the Cameron V Project abandoned uranium sites and vicinity. The surveys were conducted in June of 1998 and July of 1999.

NAMLRD is requesting your concurrence on our recommendation of "no effect" to the Navajo and federally listed threatened and endangered plant and animal species for the Cameron V Project.

Your prompt attention and response would greatly be appreciated. If there are any questions, you can reach me at (520) 871-6584 or you may contact Ernest Greyeyes from the Tuba City field office at (520) 283-3188.

CONCURRENCE

_____
Gloria M. Tom, Director
Navajo Fish & Wildlife Department

cc: Cameron V File
Attachments

Biological Evaluation

Cameron AML Reclamation Project 5
(Project areas: NA-0101 - 0104, NA-0106 –0110, and 0121)

Project Sponsor:

Navajo Abandoned Mine Lands Reclamation Department
(Tuba City Field Office)
Contact: Ernest Greyeyes
P.O. Box 730
Tuba City, Arizona 86045
Phone: (505) 283-3188

Authors:

Darryl Martinez, Biologist
Navajo Abandoned Mine Lands Reclamation Department
P.O. Box 1875
Window Rock, Arizona 86515
Phone: (520) 871-6982

And

Debra Yazzie, Biologist
Navajo Nation Fish & Wildlife Department
P.O. Box 1480
Window Rock, Arizona 86515
Phone: (520) 871-6472

November 1999

Table of Contents

I. Location and Description of the Action

The Navajo Abandoned Mine Lands Reclamation Department (NAMLRD), Tuba City AML Field Office, has received a construction grant from the Office of Surface Mining Reclamation and Enforcement (OSMRE) to reclaim certain abandoned uranium mine lands within the Cameron, Bodaway and Coalmine chapters. NAMLRD labeled this project as "Cameron AML Reclamation Project 5." This project area is located approximately 2.6 mi. SSE to approximately 3 mi. N of Cameron, Arizona, and 1 site 2 mi. SE of Navajo Bridge, Lee's Ferry, Arizona. The Cameron 5 Project includes sites NA-0101- 0104, NA-0106 – 0110, and NA-0121.

These abandoned uranium mines pose a serious health and safety hazard to the people, livestock and wildlife that inhabit and use rangeland located on or near the mines. Several different types of mine features occur in these project areas, including: open adits, open pits, rimstrips, partially backfilled vertical shafts, high walls, trenches, and mine waste. It is the goal of NAMLRD to reclaim these hazardous abandoned uranium mines by bulk heading and backfilling open adits, backfilling open uranium pits and rimstrips using selective handling of radioactive material, installing drainage diversions, regrading, and top soiling project areas to the extent possible. These methods will essentially encapsulate the radioactive waste in the open pits, therefore minimizing airborne, ground water, and surface water contamination. The Arizona Ecological Services Field Office, U.S. Fish & Wildlife Service concurred with NAMLRD determination of "no effect" for the humpback chub (*Gila cypha*) in the Little Colorado River on a earlier reclamation activities in the immediate area.

II. Description of the Environment

Project	Location	Ac	Habitat	*Geology; Soil Type
NA-0101	SW/4, Section 01, T39N, R07E	10	Desertscrub	Chinle Form;Shinar
NA-0102	NW/4, Section 26, T32N, R09E	14	Desertscrub	Chinle Form;Shinar
NA-0103	SW/4, Section 22, T32N, R09E	41	Desertscrub	Chinle Form;Shinar
NA-0104	NE/4, Section 22, T30N, R09E	19	Desertscrub	Chinle Form;Shinar
NA-0106	SW/4, Section 22, T29N, R09E	18	Desertscrub	Chinle Form;Shinar
NA-0107	NE/4, Section 01, T28N, R09E	5.5	Desertscrub	Chinle Form;Shinar
NA-0108	NW/4, Section04, T28N, R09E	18	Desertscrub	Chinle Form;Shinar
NA-0109	SE/4, Section 15, T27N, R10E	21	Desertscrub	Chinle Form;Petrif
NA-0110	SW/4, Section 35, T27N, R10E	10	Desertscrub	Chinle Form;Petrif
NA-0121	NW/4, Section16, T29N, R10E	32	Desertscrub	Chinle Form;Shinar

*Geology: Chinle Formation is a sandstone; Soil Type: Shinarump member is light gray to yellowish gray sandstone and conglomerate. Petrified Forest member is claystone, siltstone, and minor amounts of sandstone.

The topography around the project areas is relatively flat with sparse vegetation, unless otherwise noted. Elevation of the project areas range between 4000 ft (1219 m) and 4800 ft (1463 m).

III. Species list and Status

The Navajo Natural Heritage Program (NNHP) compiled a list of species of concern for this project on May 21, 1999. The following species potentially occur on or adjacent to Cameron 5 project areas:

Amsonia peeblesii (Peebles blue-star).
Amsonia tomentosa* var. *stenophylla (narrowleaf blue star)
Asclepias welshii (Welsh's milkweed); NESL group 4; ESA endangered
Astragalus sophoroides (Painted Desert milk-vetch)
Cryptantha atwoodii (Atwood's catseye)
Cymopterus megacephalus (Bighead water parsnip)
Errazurizia rotundata (Round dunebroom); NESL group 4
Pediocactus bradyi (Brady pincushion cactus) NESL group 2; ESA endangered
Pediocactus peeblesianus var. Fickeiseniae (Fickeisen plains cactus); NESL group 3; ESA candidate
Phacelia welshii (Welsh phacelia); NESL group 4
Psorothamnus arborescens var. pubescens (Mohave dalea)
Puccinella parishii (Parish's alkali grass); NESL group2;
Antilocapra americana americana (Pronghorn); NESL group 3
Aquila chrysaetos (Golden eagle); NESL group 3, MBTA; EPA
Buteo regalis (Ferruginous hawk); NESL group 3; MBTA
Catostomus discobolus (bluehead sucker); NESL group 4
Catostomus latipinnis (flannelmouth sucker); NESL group 4
Cinclus mexicanus (American dipper); NESL group 3; MBTA
Dipodomys microps leucotis (Marble Canyon kangaroo rat); NESL group 4
Empidonax traillii extimus (Southwestern willow flycatcher); NESL group 2; ESA endangered; MBTA
Falco peregrinus (Peregrine falcon); NESL group 3; ESA endangered; MBTA
Gila cypha (Humpback chub); NESL group 2; ESA endangered
Haliaeetus leucocephalus (Bald eagle); NESL group 3; ESA threatened; MBTA; EPA
Lampropeltis triangulum (Milk snake); NESL group 4
Lanius ludovicianus (Loggerhead shrike); MBTA
Mustela nigripes (Black-footed ferret); NESL group 2; ESA endangered
Ovis canadensis nelsoni (Desert bighorn sheep); NESL group 3
Oxyloma haydeni kanabensis (Kanab Ambersnail); NESL group 4; ESA endangered
Perognathus amplus ammodytes (Navajo pocket mouse)
Rana pipens (Northern Leopard frog); NESL group 3
Rhinichthys osculus (speckled dace).
Sauromalus obesus (Chuckwalla); NESL group 4
Xyrauchen texanus (Razorback sucker); NESL group 2; ESA endangered
Waterfowl – LCR

NESL - Navajo Endangered Species List
MBTA - Migratory Bird Treaty Act
ESA - federal Endangered Species List,
EPA - Eagle Protection Act

IV. Survey Methodology

Sources of information for determining which species should be surveyed for at the sites were from the NNHP database, along with species habitat requirements attained from books, reports, and scientific papers.

Survey techniques employed on the project area were to:

1) Locate and assess project area,
2) write a project area description,
3) walk project area,
4) take notes on plant and animal species observed in and around the site, and
5) determine if potential habitat exists for species of concern.

All cliffs and pinnacles within 1 mile of project sites were scanned with binoculars and spotting scope for raptor nest or perch areas. Areas within ¼ mile of the Little Colorado River were assessed for potential southwestern willow flycatcher (*Empidonax trailii extimus*) habitat.

A complete survey was conducted on June 1 and 2, 1998 by Debra Yazzie, Wildlife Biologist, and Daniela Roth, Botanist, NNHP, Navajo Fish & Wildlife Department. A survey to revisit areas of potential T & E habitat was conducted by Darryl Martinez, Biologist, NAMLRD, on July 21 and 22, 1999.

V. Survey Results

Project area NA-0101

This project area consists of two adits. The northern adit is 8 feet high by 8 feet wide and 30 feet deep. The work to be completed on this site is to bulkhead it. The access road is estimated to be 0.3 miles long and there is no waste to be moved. The southern adit is 5 feet high by 6 feet wide and an unknown depth. The work to be completed on this site is to bulkhead it. The access road is estimated to be 0.3 miles long and there is no waste to be moved.

Approximately 0.5 mile east of the project site is Echo Cliffs, which are approximately 1,000 feet high. The project sites are below Echo Cliffs and in the rim of an unnamed canyon. The southern access road gradually weaves up the side of the canyon. This road is severely eroded and capable of causing harm to personnel and equipment if precautions are not taken when improving this road. The northern access road goes directly up to the portal. This site is not as treacherous as the southern site. No sign of animal usage or listed plants were found within the site.

Although the rocky outcrops and crevices in the area provide potential habitat for chuckwalla

(*Sauromalus obesus*), none were observed during the surveys. Disturbance of large rocks and other potential habitat will minimized. It is recommended that a small opening (approximately 3 in.) be left to avoid entombing reptiles and/or other small animals with the portals.

All cliffs within 1.0 mile of the project area were searched via binoculars and spotting scope for raptor nesting and perching areas. There was no sign of raptor use. No sign of usage of the southern portal by animals could be seen. No attempt was made to search the portal due to the dangerous conditions both inside and outside. No listed plants were found within the area.

Project area NA-0102

This project area includes three open pits, three small vertical openings, and a rim strip. There are approximately 1600 yds^3 of associated mine waste. The access road is heavily used by the local residents and is in good condition. No sign of usage of the vertical openings by animals could be seen. No standing water lined the open pits. No bird's nests were found on the rim strip. No listed plants were found within the project area.

Project area NA-0103

This project area is located approximately 1.0 mile west of site NA-0102 and includes five small vertical openings, three open pits, and one rimstrip. There are approximately 34,300 yds^3 of associated mine waste. The access road is heavily used by the local residents and is in good condition. No sign of usage of the vertical openings by animals could be seen. No standing water lined the open pits and no bird's nests were found on the rim strip. No listed plants were found within the project area.

Project area NA-0104

There are three open pits, two rimstrips, and approximately 8800 yds^3 of associated mine waste within project area NA-0104. This project area is located near the north bank of Moenkopi Wash. The access road is heavily used by the local residents and is in good condition. No standing water lined the open pits and no bird's nests were found on the rim strip. No listed plants were found within the project area.

Project area NA-0106

Five rimstrips and approximately 2300 yds^3 of associated mine waste make up project area NA-0106. This area is located north of a residential area. Grazing, roads and illegal trash dumping have caused disturbance to most of the area. The vegetative cover is sparse, no bird's nests were found on the rim stripped areas and on the Little Colorado River gorge sidewalls. No threatened or endangered species were found. However a sensitive species, *Amsonia peeblesii*, was found within the project area.

Project area NA-0107

Project area 107 is a 170 feet long x 50 feet wide x 15 feet deep rim strip with 13 drill holes. It has approximately 3,500 yds^3 of associated mine waste and no haul road. The surrounding habitat has very little vegetation. South of the area is a small drainage which leads to the Little Colorado River. No threatened or endangered species were found in or around the area.

Project area NA-0108

Project area NA-0108 consists of two rimstrip areas measuring 140 feet long x 15 feet wide x 3 feet deep and 25 feet long x 50 feet wide x 3 feet deep. It also has approximately 6400 yd^3 of associated mine waste. No haul road exists, however the area receives heavy grazing and vehicle disturbance. An electrical substation lies south of the project area; thus the electrical company and local residents heavily use the access road. No threatened or endangered animal species were found in or around the area. However, a sensitive species, *Amsonia peeblesii*, was found growing within and adjacent to the project area.

Project area NA-0109

This project area has one site which is a rim strip measuring 130 feet long, 95 feet wide with 126 feet sloping highwalls. The site is located on the northwestern side of a hill. The top of the mesa has sparse vegetative cover with roads winding in and around the project area. The Little Colorado Riverbank lies west of the project area while the actual flowing river is located approximately 0.1 mile away. Tamarisk growth runs along the bank. Several cows were seen foraging within the tamarisk.

The tamarisk growth area was examined for potential southwestern willow flycatcher habitat. The tamarisk growth is unsuitable due to the lack of dense patches of tamarisk, little over-story and lack of water source in the area of potential habitat.

No threatened or endangered species or their potential habitats were found at this project area.

Project areas NA-0110a and NA-0110b

Project area NA-0110a consists of an open pit measuring 300 feet long x 95 feet wide x 19 feet deep. Approximately 15,300 yds^3 of waste are located in mounds throughout the project area. No haul roads exist to the site but several roads leading to the site exist. Reclamation will consist of backfilling the pit with the waste and covering it with non-radioactive soil.

Project area NA-0110b consists of approximately 8000 yds^3 of waste material, but no apparent open pits or other mine features.

There is badland-type topography to the east and southeast of the project areas. Sandstone

pinnacles that could be used for ferruginous hawks (*Buteo regalis*) nest or perch sites within 1.0 mile of the project areas were searched via binoculars. No ferruginous hawks' nests were found nor were any ferruginous hawks observed during the surveys. It is recommended that additional surveys be conducted if construction at sites NA-0110a and NA-0110b proceeds into March 2000 due to the presence of potential habitat.

No threatened or endangered species or their potential habitats were found at these project areas.

Project area NA-0121

Project area NA-0121 consists of three open pits with approximately 37,000 yds^3 of waste material adjacent to the pits. This site will be reclaimed by filling in the pits with the waste material and covering each site with non-radioactive material.

No threatened or endangered species or their potential habitats were found at this project area.

Table 1. Cameron V AML Project Biological Survey Results.

Project Area	Species of Concern	Potential Habitat	Suggested Avoidance, Mitigation, and Alternative Measures
NA-0101	Golden eagle Chuckwalla	Yes Yes	If construction activities extend into March 2000, conduct raptor survey during breeding season. If found, report to NNHP zoologist.
NA-0102	None		None suggested
NA-0103	None		None suggested
NA-0104	None		None suggested
NA-0106	Peebles' blue-star	Yes	Avoidance – suggest avoidance of Peebles' blue-star during construction activities.
NA-0107	None		None suggested
NA-0108	Peebles' blue-star	Yes	Avoidance – suggest avoidance of Peebles' blue-star during construction activities.
NA-0109	None		None suggested
NA-0110a & NA-0110b	Ferruginous hawk	Yes	If construction activities extend into March 2000, conduct raptor survey during breeding season. If found, report to NNHP zoologist.
NA-0121	None		None suggested

VI. Impact Assessment

The current vegetation growing within the project area boundaries will either be destroyed or trampled by all the reclamation activities. B.S.S.P. is in agreement with NAMLRD regarding the decision not to re-vegetate the project areas "due to the high alkaline and sodic nature of the natural ground." The only animal species that occasionally occupy the project area through foraging are birds and lizards. No negative impacts are foreseen to the listed threatened or endangered plant and animal species, provided implementation of avoidance.

VII. Conclusion

NAMLRD recommends a no effect to the listed threatened or endangered plant and animals species with the reclamation of Project areas NA-101 through NA-104, NA-106 through NA-110, and NA-0121.

VIII. Personnel

Daniela Roth - Botanist, Navajo Natural Heritage Program, Navajo Fish & Wildlife Department.

Debra A. Yazzie-Wildlife Biologist, Navajo Fish & Wildlife Department. Protocol training-Mexican Spotted Owl, Southwestern Willow Flycatcher, Wetland Delineation Training.

Darryl Martinez – Biologist, Navajo Abandoned Mine Lands Reclamation Department.

IX. Certification

I, Darryl Martinez, Biologist, Navajo Abandoned Mine Lands Reclamation Department, am responsible for the content of this report entitled: "Cameron AML Reclamation Project 5 (Project areas: NA-0101 - 0104, NA-0106 – 0110, and NA-0121)" and duly certify that all information is true.

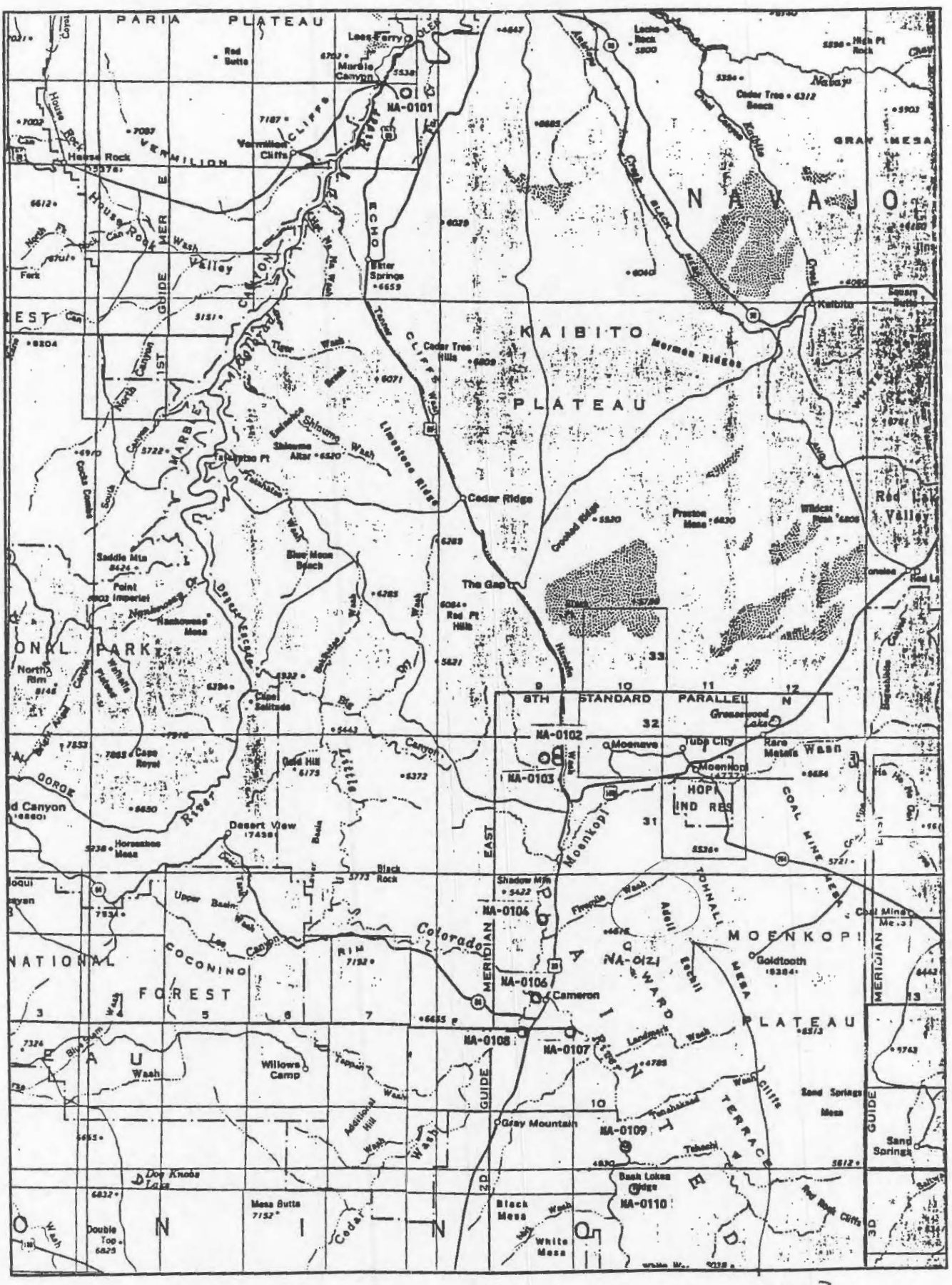
Signature: _____ Date: 11/29/10

X. Coordination and consultation

Ernest Greyeyes -requestor, Cameron AML Reclamation Project 5, Cameron, AZ.

Brent Nelson -Data manager, Navajo Natural Heritage Program, Navajo Fish & Wildlife Department. Contacted for Information Request (IR).

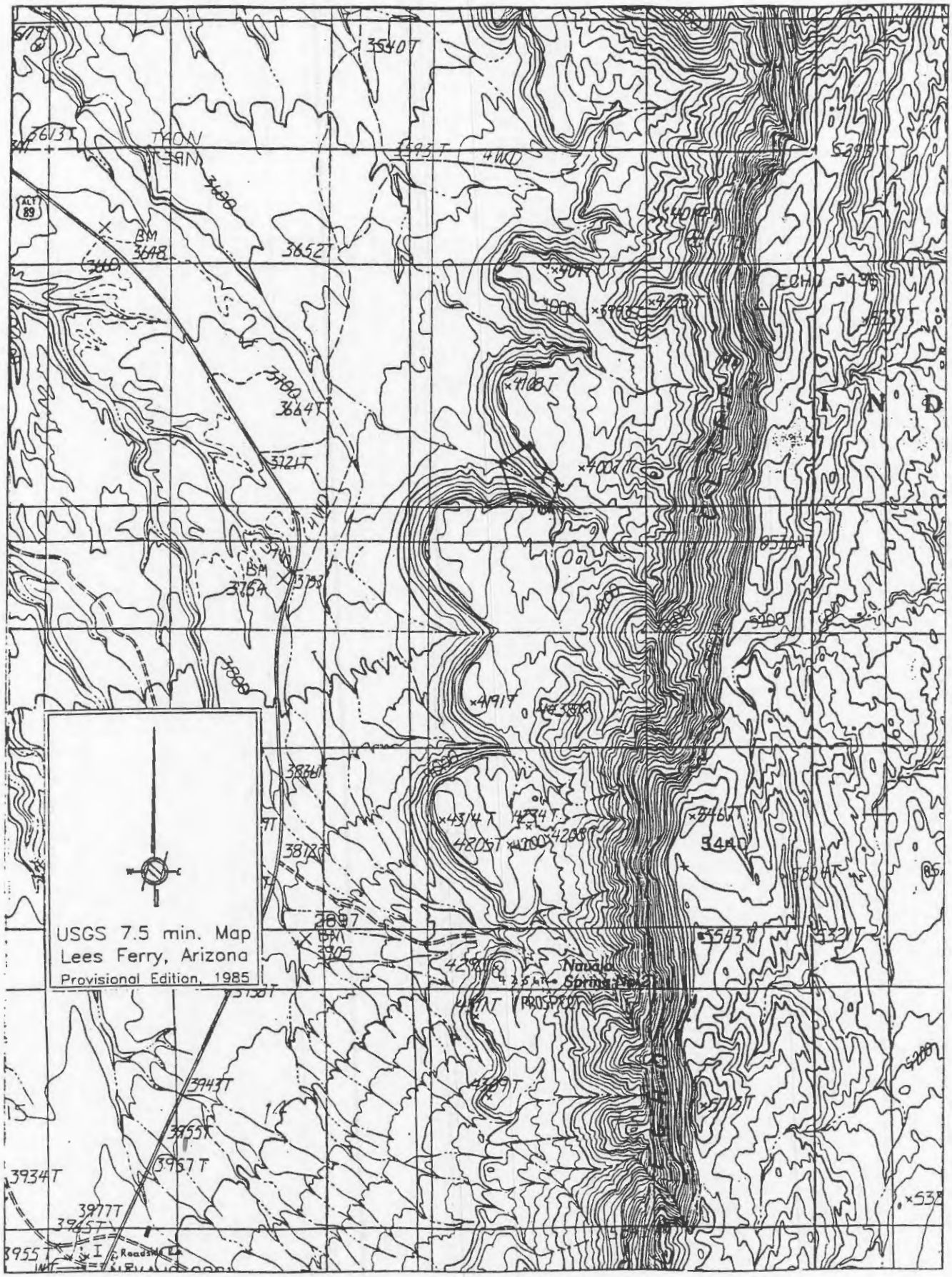
John Meyer -Program manager, Navajo Natural Heritage Program, Navajo Fish & Wildlife Department. Biological Evaluation Report content review.



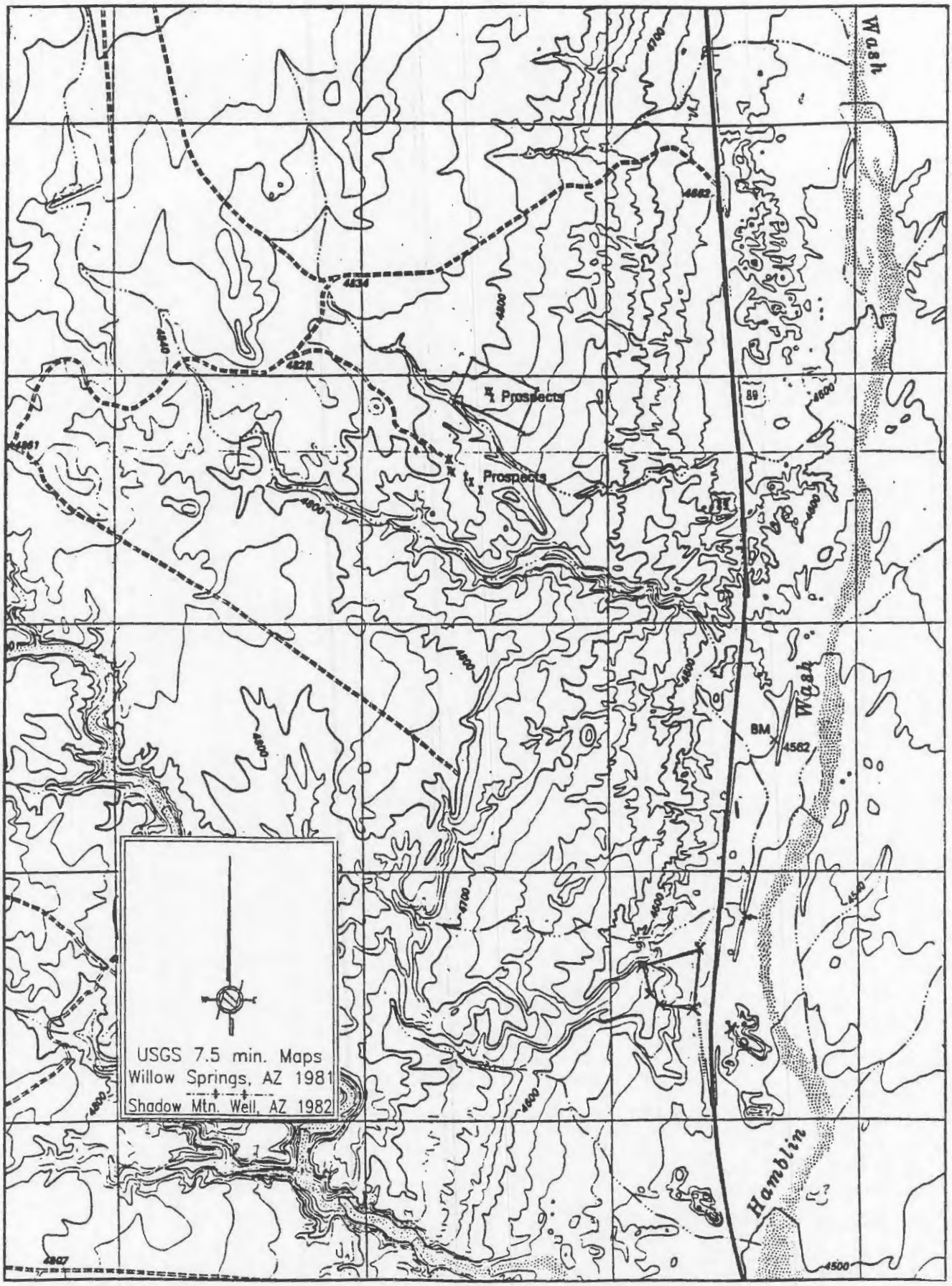
0121?

MAP NO. 1: Location of Cameron AML Reclamation Project 5.

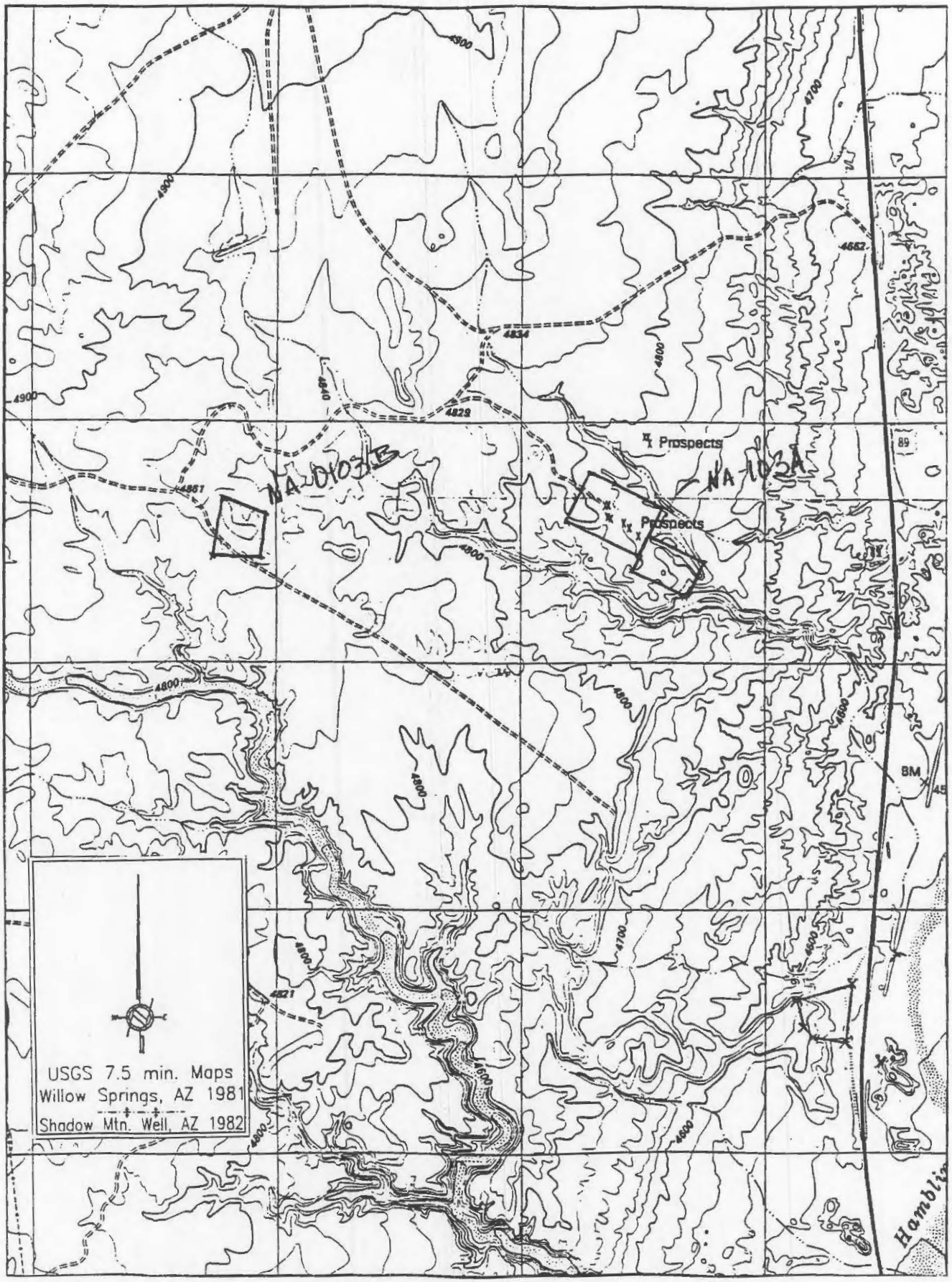
Source for map



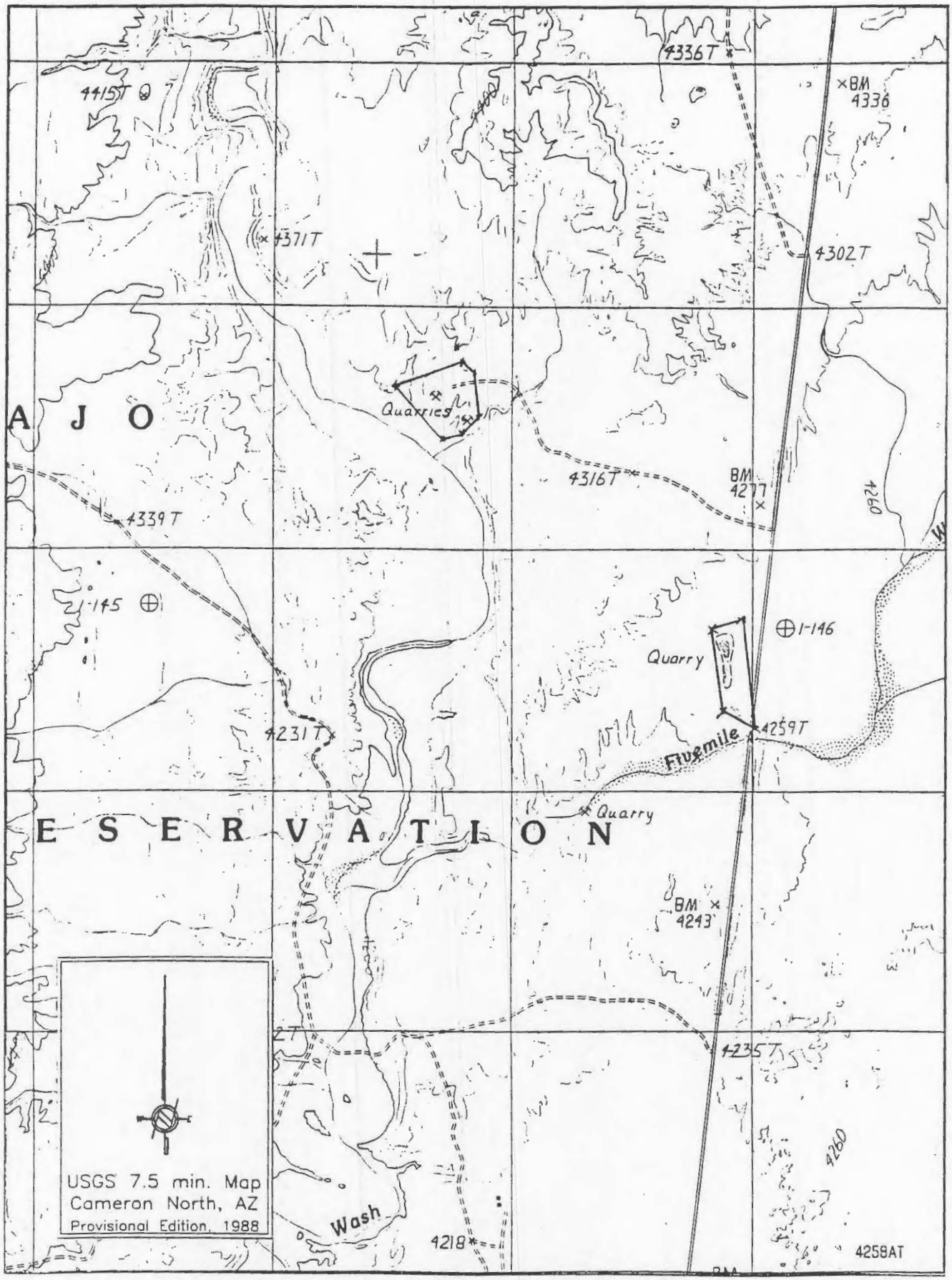
MAP NO. 2: Specific location of NA-0101 Jimmy Boone a&b. Site is located in 1/4 SW, Sect. 1, T39N, R7E, G&SRM.



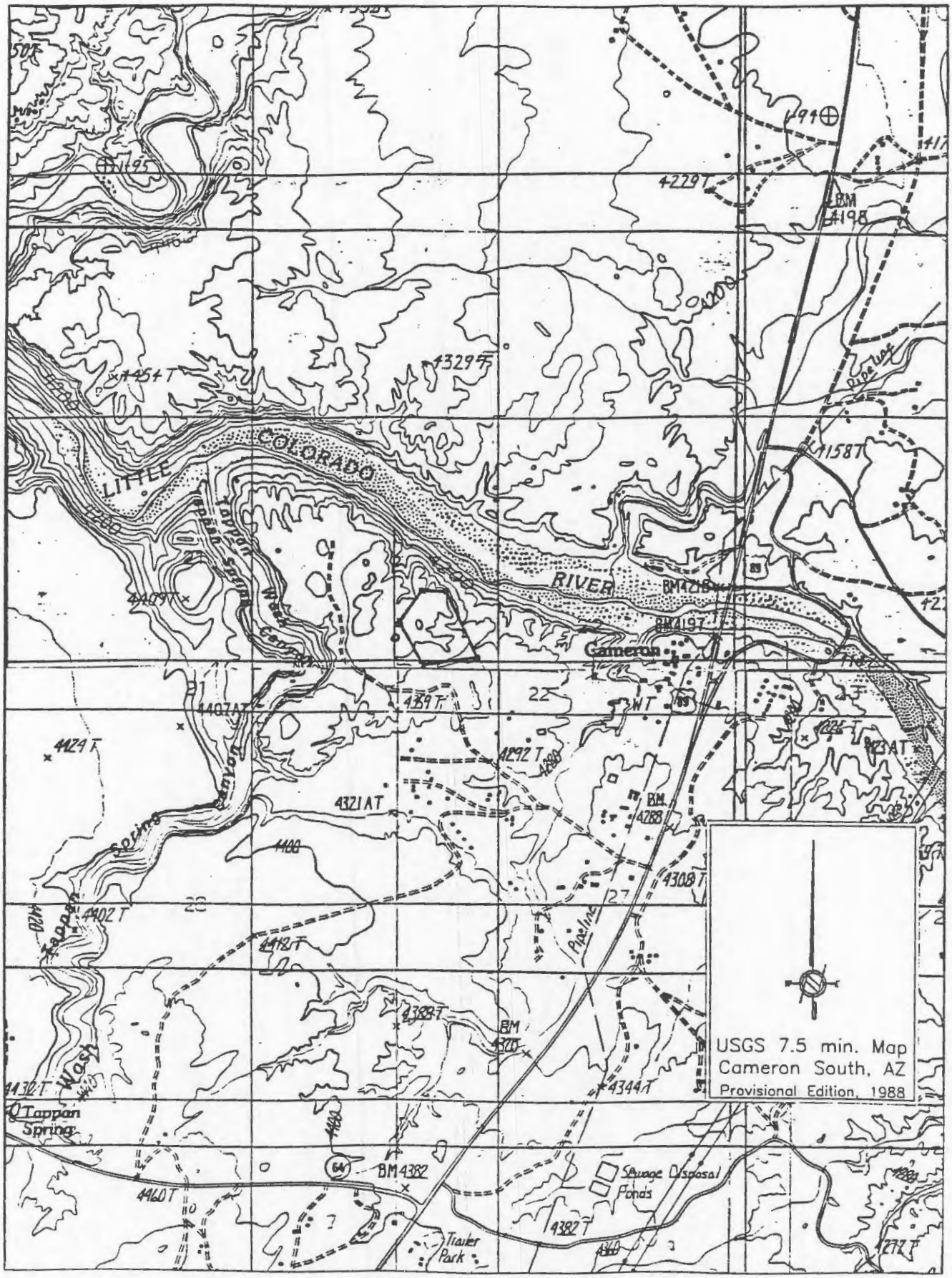
MAP NO. 3: Specific location of NA-0102 Max Huskon. Site is located in 1/4 NW, Sect. 26, T32N, R9E (projected), G&SRM.



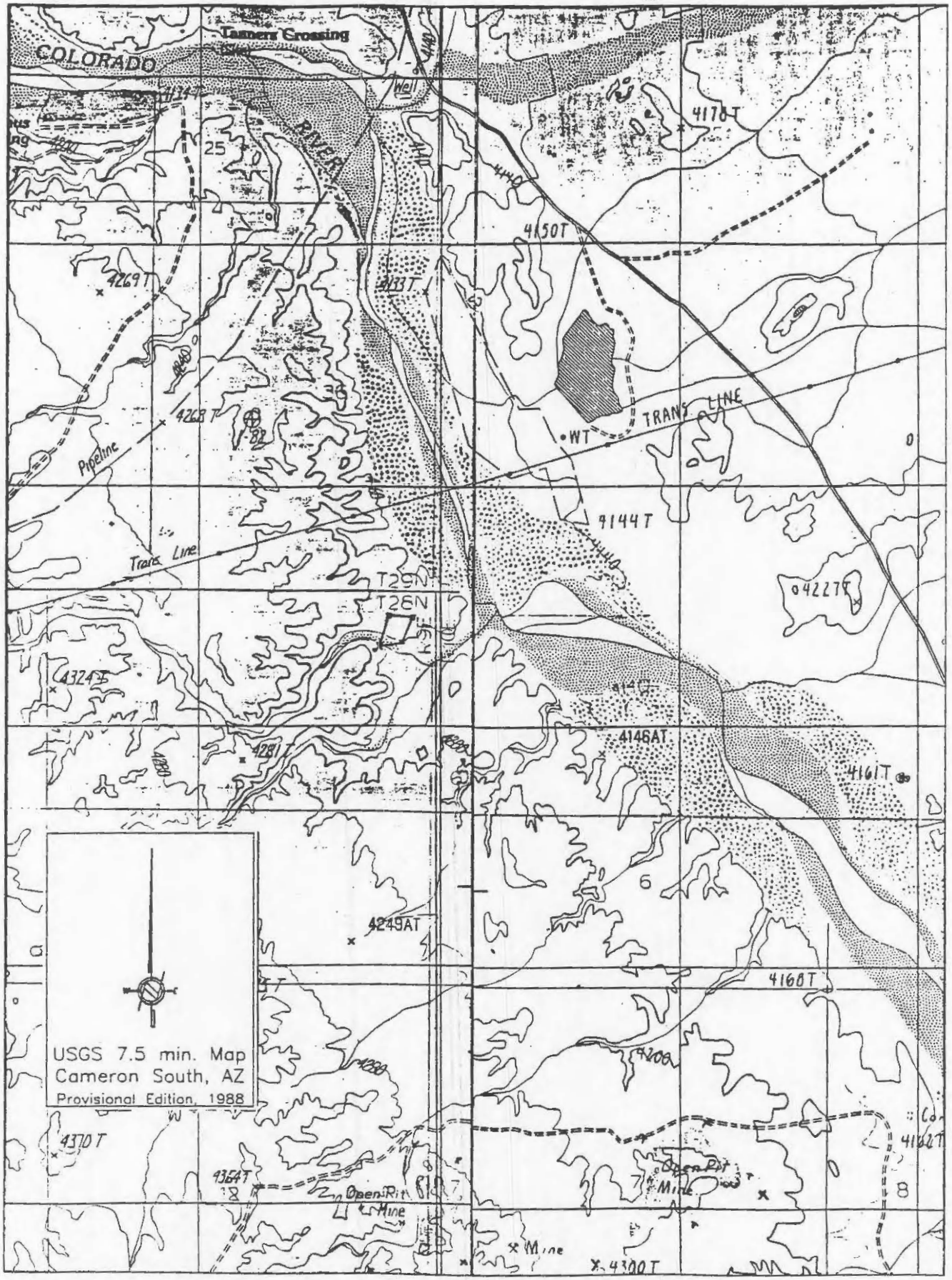
MAP NO. 4: Specific location of NA-0103 sites. Sites are located in T32N, R9E (projected), G&SRM.



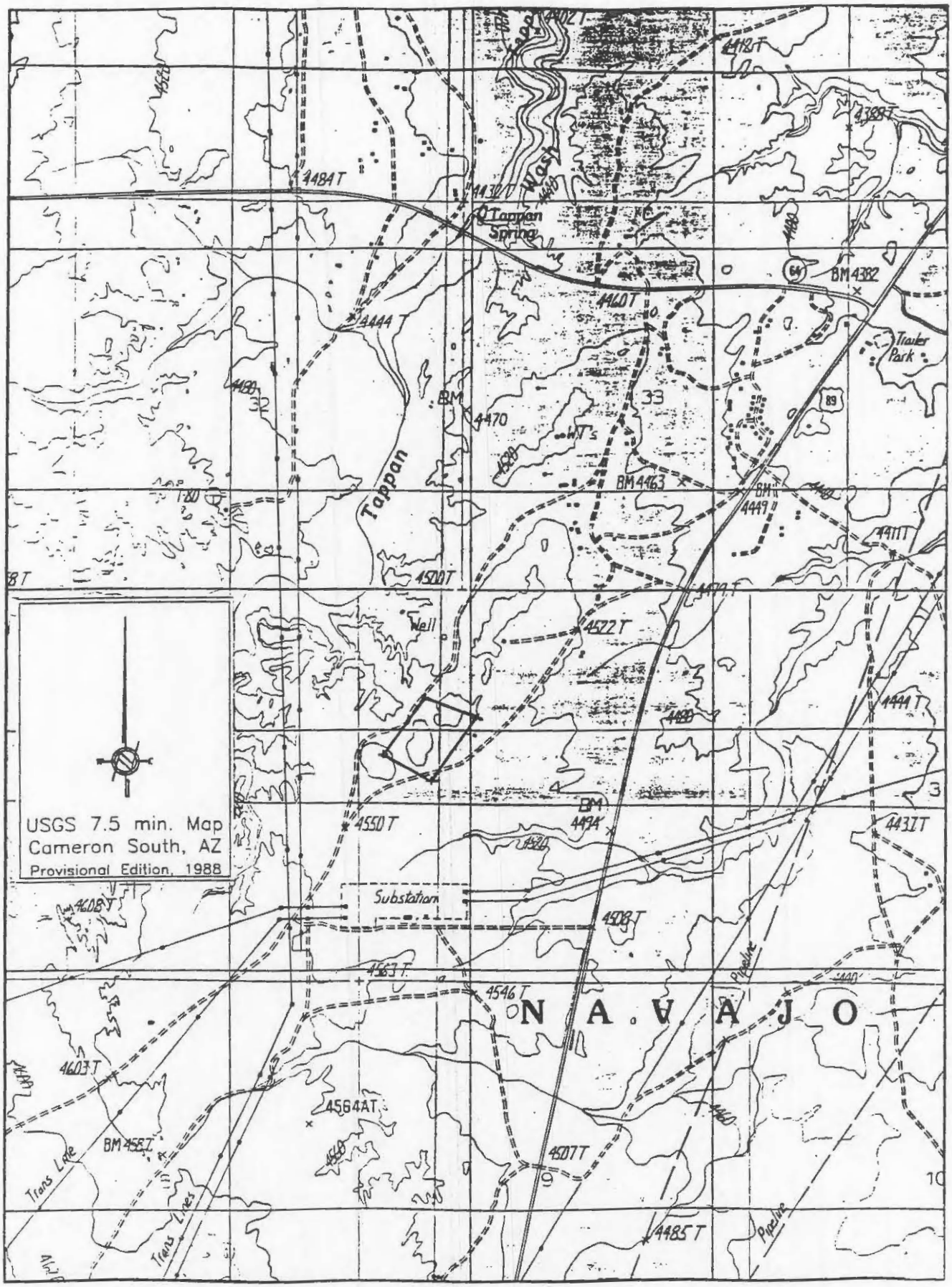
MAP NO. 5: Specific location of NA-0104 Charles Huskon No. 6. Site is located in 1/4NE, Sect. 22, T30N, R9E (projected), G&SRM.



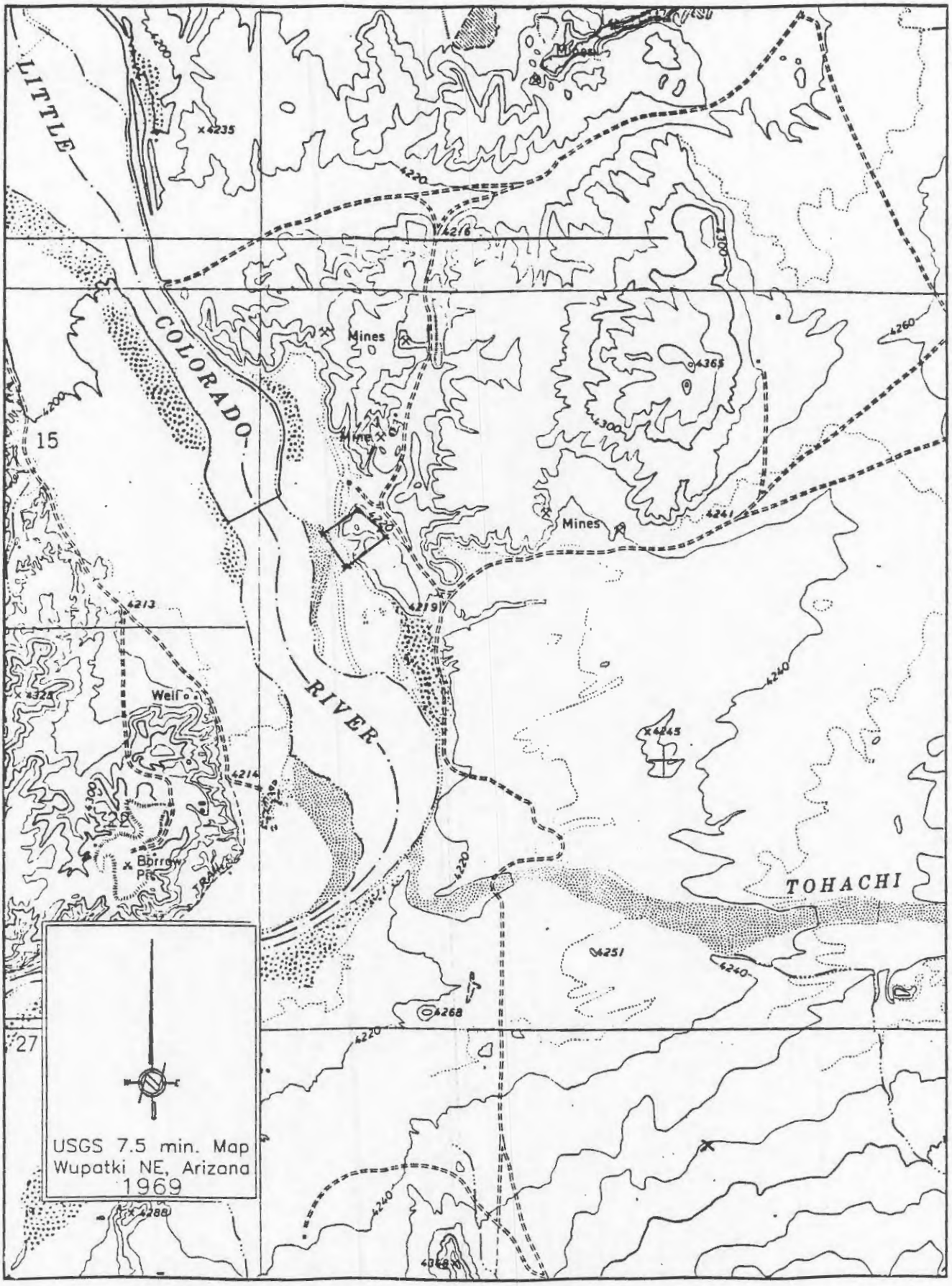
MAP NO. 6: Specific Location of NA-0106 A&B No. 3. Site is located in 1/4SW, Sect. 22, T29N, R9E, G&SRM



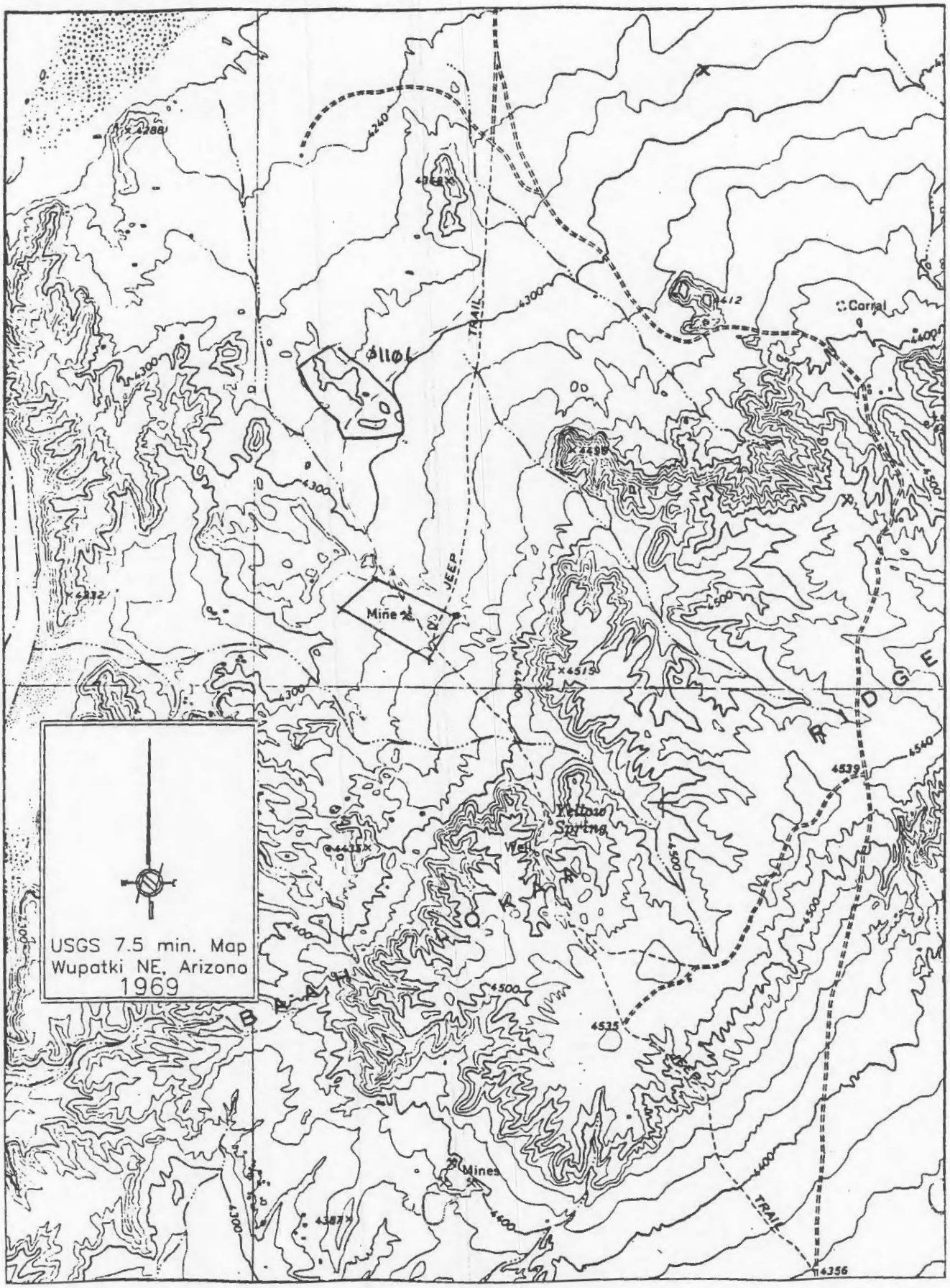
MAP NO. 7: Specific location of NA-0107 Montezuma No. 1. Site is located in 1/4NE, Sect. 1, T28N, R9E (projected), G&SRM.



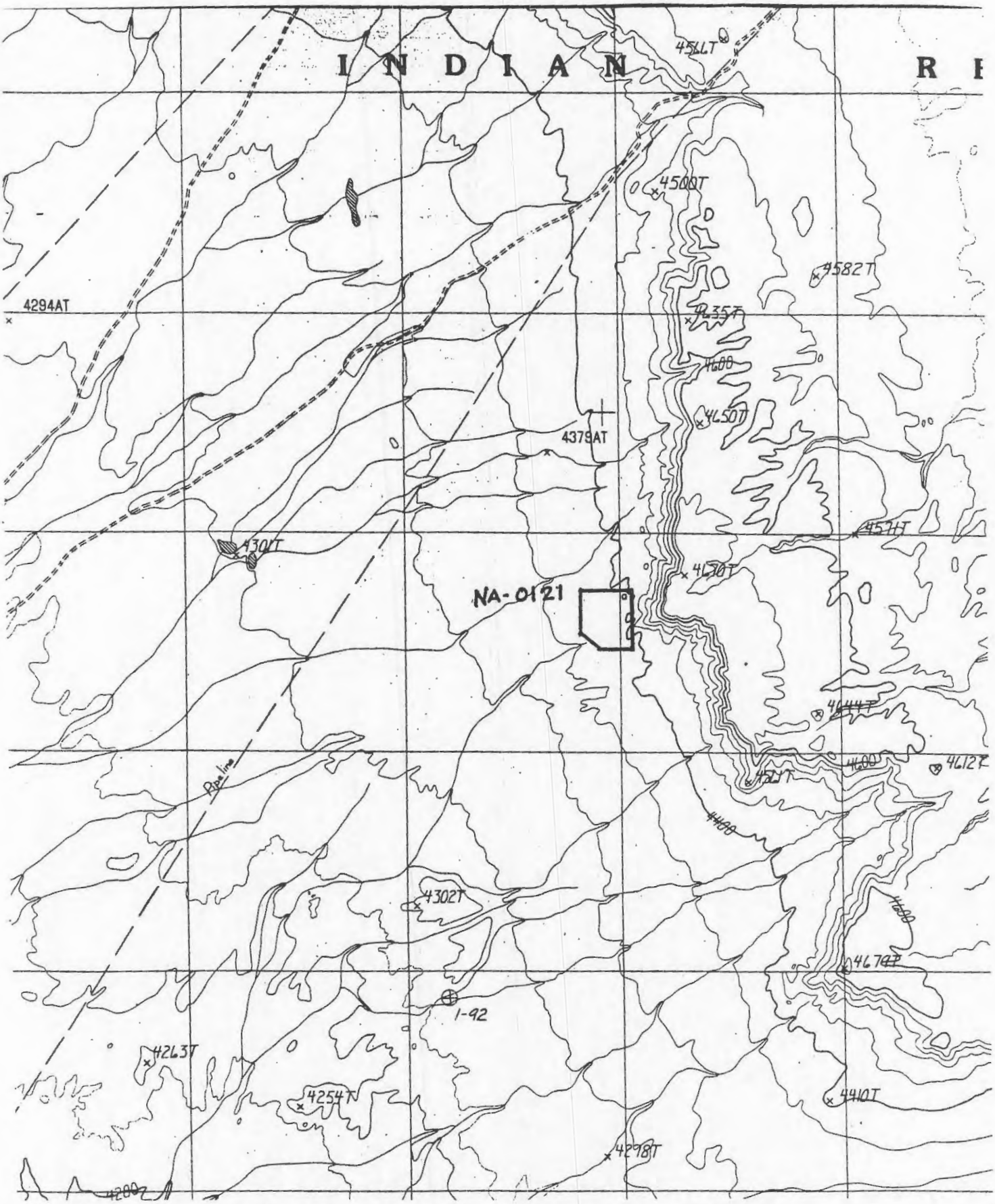
MAP NO. 8: Specific location of NA–0108 A&B No. 2. Site is located in 1/4NW, Sect. 4, T28N, R9E (projected), G&SRM.



MAP NO. 9: Specific location of NA-0109 Jackpot No. 40. Site is located in 1/4SE, Sect. 15, T27N, R10E (projected), G&SRM.



MAP NO. 10: Specific location of NA-0110 Max Johnson No. 7. Site is located in 1/4SW, Sect. 35, T27N, R10E (projected), G&SRM.



MAP NO. 11: Specific location of NA-0121. Site is located in 1/4 NW, Sec. 16, T29N, R10E, G&SRM.

5m. ENE

United States Department of the Interior
Fish and Wildlife Service
Arizona Ecological Services Field Office
2321 W. Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
(602) 640-2720 Fax (602) 640-2730

In Reply Refer To:

AESO/SE

July 1, 1996

Mr. Perry H. Charley
Shiprock-Tuba City AML Programs
Navajo AMLR Department
P.O. Box 308
Window Rock, Arizona 86515

Dear Mr. Charley:

The Fish and Wildlife Service has reviewed the additional information provided in your letter to us dated June 5, 1996 concerning the Cameron Project 4. This information, combined with material previously received by the Service was used in making a determination of effect from the proposed mine reclamation on the endangered humpback chub (Gila cypha). The Service concurs with your finding of no effect from the proposed action on this endangered fish.

Thank you for providing the additional information requested. If we can be of further assistance on this project or other similar projects, please contact Lesley Fitzpatrick or Ted Cordery. For most other projects please contact Michele James at our Flagstaff location (520) 527-3042.

Sincerely,

Sam F. Spiller
Field Supervisor

THE NAVAJO NATION

Cameron IV encl. F
" V DEC/JAN

GI CY
AQ CH
BO RE
} no potential nesting habitat w/in 1 mi
LD Mitchell

ALBERT A. HALE
PRESIDENT

JUNE 5, 1996

THOMAS E. ATCITTY
VICE PRESIDENT

Leslie Fritzpatrick, Fishery Biologist
Ecological Services, U.S.F.W.S.
U.S. Department of Interior
3616 W. Thomas, Suite 6
Phoenix, Arizona 85019

RE: AESO/SE 2-21-92-I-421
THE NAVAJO NATION: CAMERON PROJECT 4

Dear Ms. Fritzpatrick,

In reviewing the May 7, 1996 U.S. Fish and Wildlife Service's response to the amended Threatened and Endangered Species survey report submitted by Navajo Fish and Wildlife Department for concurrence, the following is submitted to address the concerns regarding the Humpback Chub (*Gila cypha*). U.S. Fish and Wildlife Services expressed concerns about the methods to be used to contain the potential for uranium contamination of the Little Colorado River during and following AML reclamation.

The Navajo AML Reclamation Department (NAMLRD) reclaims *eligible abandoned* uranium mines consisting of underground and surface mines (open pits). These mines were abandoned without adequate reclamation and for which there is no continuing reclamation responsibility under State or other Federal laws. NAMLRD, in cooperation with the Federal Office of Surface Mining Reclamation and Enforcement and through its approved Reclamation Code and Plan, reclaims these mines that were abandoned prior to 1977, the enactment date for the Surface Mining Control and Reclamation Act of 1977, Public Law 95-87.

At their earliest pre-construction stages, each abandoned mined site is thoroughly characterized for their magnitude and distribution of radiological contaminates. The data obtained is used to develop selective handling and placement of the radioactive mine waste in the pits during construction and to develop site specific environmental and worker protection measures.

Where appropriate and before construction, temporary diversion ditches are installed to redirect surface runoff to prevent the possibility of introduction of contaminates into the local surface and groundwater. Before placement of the contaminated materials into the pit, each pit is "lined" and compacted with approximately 3 feet of clean clayey material. The mine waste are then selectively backfilled, placing the most contaminated material in the bottom layer. The reclaimed mines are finally covered and mounded with additional clean material to a depth of three (3) to five (5) feet. Permanent positive drainage and diversion channels are placed and armored with durable material, where appropriate, to prevent erosions.

Ms. Leslie Fritzpatrick
June 5, 1996

As these open pits have been left abandoned over thirty (30) years ago by mining companies, most of the sites were left to leach low level radioactive material into local drainages. It is the goal of NAMLRD to contain the radioactive mine waste by selective placement of the material back into the open pits as described above, essentially encapsulating the radioactive mine waste in the pits. In doing so, essentially all of the mine waste at each AML site are disposed off. NAMLRD's Health Physic staff further verify that all contaminates have been cleaned up to Departmental standards before Contractor's demobilize from the sites. These and all other specifications are included with each contract document and enforced during the life of all AML reclamation projects.

In 1994, Vector Engineering, Inc., of Littleton, Colorado, in attempts to ameliorate solid waste problems within the Cameron area through a contract with the Indian Health Services, conducted a series of drilling, sampling and laboratory testing within the area to demonstrate that a hydraulic conductivity of 1×10^{-7} can be achieved to meet the 40 CFR 258.40 impermeability criteria and achieve a 90% compaction requirement. Using these as reference, NAMLRD develops design criteria to prevent ground and surface water contamination.

Additional sources available with NAMLRD documents that the local area's dry climate and the high evapotransporation of approximately 45 inches per year has desirable climatic conditions for containing mine waste, prevent groundwater perching and contamination of the local groundwater reserves.

Navajo AML Reclamation Department has completed two (2) AML reclamation projects, Cameron Project 1 and 2, both of which were concurred by U.S. Fish and Wildlife Services. NAMLRD appreciates U.S. Fish and Wildlife Service's input and concurrences in these previous reports.

Your review and concurrence on the determination that in utilizing these reclamation methods, radiological contaminates (mine waste) would be contained and therefore, would have "No Effect" on the Humpback Chub (*Gila cypha*) is requested.

Thank you for your prompt response. If I can be of further assistance, please contact me at the Shiprock AML Program office, (505) 368-1220.

Sincerely,

Perry H. Charley, Program Manager
Shiprock-Tuba City AML Programs
Navajo AMLR Department

xc., Madeline Roanhorse, Acting Director
John Nystedt, Navajo Fish and Wildlife Department
Files

United States Department of the Interior

Fish and Wildlife Service
Arizona Ecological Services Field Office
2321 W. Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
(602) 640-2720 Fax (602) 640-2730

In Reply Refer To:

AESO/SE
2-21-92-I-421

May 7, 1996

MAY 1996
RECEIVED

Mr. Perry H. Charley
The Navajo Nation
Abandoned Mine Lands Program
P.O. Box 308
Window Rock, Arizona 86515

RECEIVED
12 May 96
@ 0943 hours - FAX

Dear Mr. Charley:

This letter is in response to your January 30, 1996, request for concurrence with your finding that the proposed Cameron IV project involving reclaiming abandoned mine sites will have "no negative impact" to the following species: black-footed ferret (*Mustela nigripes*), bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Peregrinus anatum*), humpback chub (*Gila cypha*), southwestern willow flycatcher (*Empidonax traillii extimus*), Parish alkali grass (*Puccinellia parishii*), and Fickeisen plains cactus (*Pediocactus peeblesianus* var. *fickeisenlae*). Clarification from your office indicates that the finding of "no negative impact" equates to a finding of "no effect" (Perry Charley, pers. comm.).

The Cameron IV project is located near the town of Cameron, Arizona. The proposed action is to reclaim eleven abandoned uranium open pit mines. Proposed reclamation activities include backfilling of abandoned open pit uranium mines using selective handling of radioactive material, construction of a diversion channel and/or berms, and upgrading of existing access roads.

The Service could not concur with the original request for concurrence that the Cameron IV project would have no negative impact on listed species (November 25, 1994). The Service stated that all federally listed species of concern were not adequately addressed in the biological evaluation dated November 9, 1993. The Navajo Fish and Wildlife Department prepared a report (January 22, 1996) that addresses these needs.

The Service has reviewed the two biological evaluations for this project and concurs with your determination that the Cameron IV project will have "no effect" for all of the above listed species except the humpback chub (*Gila cypha*). The January 22, 1996, biological evaluation states that no pit water is currently leaching or seeping into the surrounding ground water, and therefore, not into the Little Colorado River. However, it remains unclear how the potential for uranium contamination of the Little Colorado River during, and as a result of the proposed reclamation activities are being addressed. Due to this, the Service cannot concur with your determination of "no effect" for the humpback chub at this time.

Thank you for your consideration of threatened and endangered species. If we be of further assistance, please contact Michele James or Bruce Palmer.

Sam F. Spiller
Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (GM:AZ)
Field Supervisor, Fish and Wildlife Service, Albuquerque, NM
Director, Navajo Fish and Wildlife Department, Window Rock, AZ

5/17/96
Lawrence,
Check w/ Michele James on humpback chub. Need all of this in writing for the EA. Thanks
OK

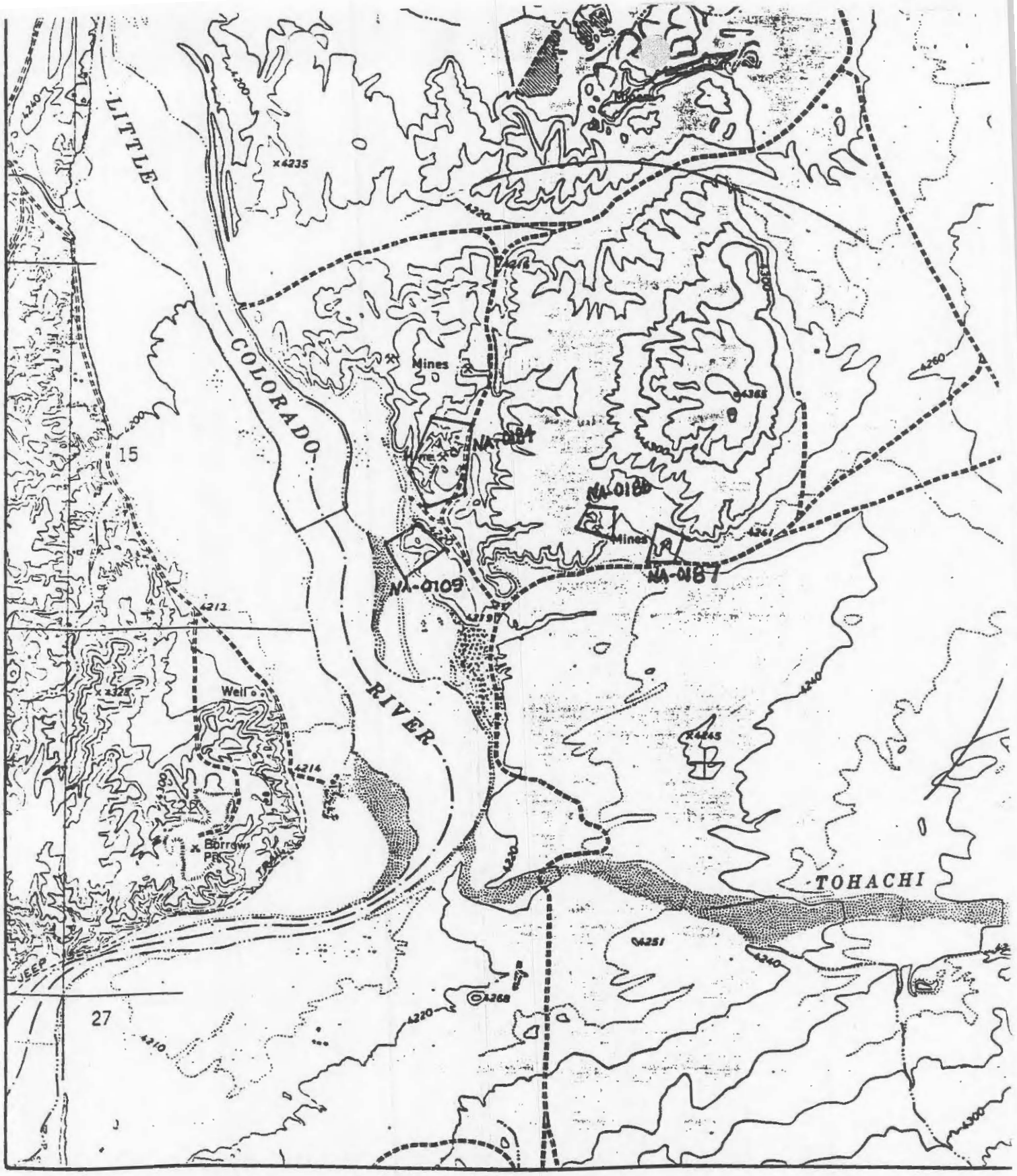


Figure 1. Cameron IV Project Sites NA-0184, NA-0186, and NA-0187. USGS *Wupatki NE, Ariz.* (1969) 7.5' quadrangle map.

III. Description of the Environment

Within the project area, the primary exposed geologic formation is the Petrified Forest Member of the Chinle Formation. The topography is comprised of broad expanses of badlands with rock spires. The project area falls within the Upper Sonoran Life Zone and within a Great Basin Desertscrub plant community. Plants commonly found in the area include broom snakeweed (*Gutierrezia sarothrae*), shadscale (*Atriplex sp.*), Morman tea (*Ephedra sp.*), Russian thistle (*Salsola iberica*), camelthorn (*Alhagi camelorum*), Indian ricegrass (*Oryzopsis hymenoides*), and tamarisk (*Tamarix chinensis*).

Project	Location	Ac	Habitat	*Geology;Soil Type
NA-0184	T28N, R10E, Sec.14, W1/2, NW1/4	19	Desertscrub	Chinle Form; Petrif
NA-0186	T28N, R10E, Sec.14, W1/2	40	Desertscrub	Chinle Form; Petrif
NA-0187	T28N, R10E, Sec.14, S1/2	44	Desertscrub	Chinle Form; Petrif
NA-0194	T28N, R10E, Sec. 33, S1/2, SE1/4	41	Desertscrub	Chinle Form; Petrif
NA-0195	T27N, R10E, Sec. 11, NW1/4	13	Desertscrub	Chinle Form; Petrif
NA-0196	T27N, R10E, Sec. 11, N1/2	32	Desertscrub	Chinle Form; Petrif
NA-0197	T27N, R10E, Sec. 11, NW1/4	85	Desertscrub	Chinle Form; Petrif
NA-0198	T27N, R10E, Sec. 11, NW1/4	20	Desertscrub	Chinle Form; Petrif

*Geology: Chinle Formation is a sandstone; Soil Type: Petrified Forest member is claystone, siltstone, and minor amounts of sandstone.

IV. Survey Methodology

Sources of information for determining survey techniques for this site were obtained from habitat requirement discussions with Navajo Natural Heritage and Kathleen McCoy, Wildlife Biologist, Navajo Fish and Wildlife. Additional information was attained from books and reports concerning the ferruginous hawk.

Sandstone pinnacles that could be used for nest or perch areas were searched using optical aids (binoculars and spotting scope). Potential habitat along the Little Colorado River, Kish Zhini Wash, and the southwestern end of Baah Lokaa Ridge were searched via a hiking and glassing survey.

V. Survey Results

There is potential habitat within a mile of sites NA-0184, NA-0186, NA-0187, and NA-0194 through NA-0198, but no ferruginous hawks' nests were found nor were any ferruginous hawks observed during the survey for this species. The survey was conducted out of the breeding season of the ferruginous hawk, therefore an emphasis was placed on locating historic nest sites.

Table of Contents

Your prompt attention and response would greatly be appreciated. If there are any questions, you can reach me at (520) 871-6584 or you may contact Ernest Greyeyes from the Tuba City field office at (520) 283-3188.

CONCURRENCE

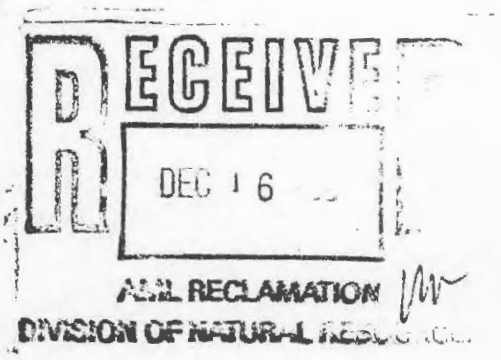
Gloria M. Tom, Director
Navajo Fish & Wildlife Department

cc: Cameron IV File
Attachments

cc: Deb M.
Ernest Gregorio.

The U.S. Department of the Interior

OFFICE OF SURFACE MINING
Reclamation and Enforcement
Suite 1200
505 Marquette Avenue N.W
Albuquerque, New Mexico 87102



December 13, 1999

Madeline Roanhorse, Director
Navajo AML Department
P.O. Box 1875
Window Rock, Arizona 86515

Dear Ms. Roanhorse:

The Office of Surface Mining Reclamation and Enforcement (OSM) has reviewed the environmental assessment (EA) for the Cameron-5 Non-Coal Project near Cameron and Marble Canyon, Arizona. OSM's review was expedited in order to assist Navajo AML in obtaining a construction contract prior to the expiration of the Nation-wide permit for this project. The Project described consists of ten project areas, AML Reclamation Project Areas NA-0101, NA-0102, NA-0103, NA-0104, NA-0106, NA-0107, NA-0108, NA-0109, NA-0110, NA-0112.

OSM has determined that the EA adequately discusses the environmental issues and impacts associated with the project. Based on analysis of these documents, I have determined that the reclamation of this abandoned mine site would not have significant effects on the quality of the human environment and therefore conclude that it is not necessary to prepare an Environmental Impact Statement for this project.

Accordingly, pursuant to Chapter 5-11-20C.3 of the Federal Assistance Manual, **you are hereby authorized to proceed with construction for this project**. Enclosed is a Finding of No Significant Impact for the Cameron-5 Project.

Please contact Vernon E. Maldonado at (505) 248-5077 if you have any questions.

Sincerely,

Willis L. Gainer, Director
Albuquerque Field Office

Enclosures

FINDING OF NO SIGNIFICANT IMPACT

Cameron-5 Reclamation Project
Coconino County, Arizona

The Office of Surface Mining Reclamation and Enforcement (OSM) has thoroughly reviewed the Environmental Assessment package received on December 13, 1999, and prepared by the Navajo AML Department (NAMLRD), and determined that together, these documents adequately discuss the environmental issues and impacts for OSM abandoned mine lands reclamation construction approval purposes.

Based on the analysis in the environmental assessment (EA), I find that the reclamation of these ten (10) abandoned mine sites would not have significant effects on the quality of the human environment. I therefore conclude that no Environmental Impact Statement is necessary.

My specific reasons are as follows:

The information contained within the project EA leads me to conclude that there will be no significant impact upon topography, climate, vegetation, wildlife resources, geology, soils, air and water quality, or wetlands and that no hazardous materials exist at the site aside from the radioactive material and trash specifically the subject of as addressed by this reclamation project.

The socio-economic data presented in the EA leads me to conclude that there will be no significant impact on per capita income and unemployment or recreational potential.

I concur with the findings of the November 1999 Navajo Nation Archaeology Department's cultural resource survey titled "An Archaeological Survey of the Cameron 5 AML Reclamation Project near Cameron, Arizona" and with the Navajo Fish and Wildlife Department's November 30, 1999, concurrence with NAMLRD's finding of "no effect" on the Federal and Navajo listed threatened and endangered plant and animal species.

My approval is conditioned upon the following stipulations:

In the event construction activities encounter archaeological remains not previously identified or addressed by the EA, work should cease in the area of discovery and NAMLRD should contact OSM immediately. Likewise, in the event that any species listed or proposed to be listed as threatened or endangered species which were not already addressed by the Navajo Fish and Wildlife Department (NFWD) or the US Fish and Wildlife Service in the EA, work should cease in the area and NAMLRD should contact OSM immediately at either (505) 248-5070 or 248 -5077. OSM, in turn, will contact appropriate agencies for advice on how to minimize adverse impacts on such resources

and will advise the Navajo Nation accordingly.

The Navajo Nation shall also abide by any written recommendations, stipulations, or special conditions specified by the US Fish and Wildlife Service, the Navajo Fish and Wildlife and the Arizona State Historic Preservation Officer, the Navajo Nation Historic Preservation Department (specifically avoidance of Site AZ-N-12-16), the Navajo Nation Archaeology Department, Navajo EPA and the US Army Corp of Engineers. This includes any requirements imposed by these agencies regarding time periods for when construction can occur and when such reclamation activities cannot occur that are specified by these agencies and / or any special remediation / mitigation / consultation measures upon which their concurrences were based. Specifically, for project area NA-0101, NFWD (EA, Page-8) specifies that if construction activities extend into March 2000, a raptor survey (Golden Eagle) must be conducted; for NA-0110 the same is required but for the Ferruginous Hawk; avoidance is required at areas NA-0106 and NA-0108 for the Peebles' blue-star.

Eleuterio Maldonado 12/13/99
OSM Environmental Reviewer (or Preparer) Date

Willis L. Gainer 12-14-99
Willis L. Gainer, Director Date
Albuquerque Field Office

ENVIRONMENTAL ASSESSMENT

Cameron 5 AML Reclamation Project

Project Areas NA-0101 through NA-0104, NA-0106 through NA-0110, and NA-0121,
Located in the vicinity of Cameron and Marble Canyon, AZ.

Prepared By,

The Navajo Nation
Division of Natural Resources
Navajo AMLR/UMTRA Department
PO Box 1875
Window Rock, AZ 86515

In cooperation with,
The United States Department of the Interior
Office of Surface Mining Reclamation and Enforcement
Albuquerque, New Mexico

CPS - NEPA folder Section:
(E.A)

December 1999

Table of Contents

ENVIRONMENTAL ASSESSMENT FOR CAMERON AMLR PROJECT 5

A. DESCRIPTION OF THE PROPOSED ACTION:

The Navajo Abandoned Mine Lands (AML) Reclamation Program (the Program) proposes to eliminate the hazards and environmental problems associated with 10 problem areas in the vicinity of Cameron and Marble Canyon, AZ. These areas were mined for uranium ore and then abandoned without any reclamation prior to the enactment date, August 3, 1977, of Public Law 95-87, the Surface Mining Control and Reclamation Act of 1977 (SMCRA). Priority 1, 2, and 3 types of hazards exist at these problem areas which are numbered NA-0101 through NA-0104, NA-0106 through NA-0110, and NA-0121. The areas spread over 227 acres of lands and include 2 portals (P), 5 vertical openings (VO), 9 benches or rimstrips (BE) occupying 4.5 acres, 25 openpits (PI) occupying 8 acres, approximately 2,500 linear feet of dangerous highwalls (DH), 4.8 miles of access/haul roads occupying 6 acres of land, and numerous radioactive mine wastepiles/ embankments (DPE) with approximately 126,000 cu. yds. of mine waste and occupying over 10 acres of land. Local residents and their livestock face a significant risk of personal injury, as well as exposure to radiation emission at and near the AML sites. In addition, surface water runoff flow through some wastepiles potentially carrying dissolved heavy metals, radionuclides, and other pollutants. All project sites are easily accessible to people, livestock and wildlife. There are evidence of frequent visitations by people to the sites.

The ***proposed action*** ***(Alternative 1)*** will effectively mitigate the Priority 1 dangers and environmental problems mentioned above. The openpits and the rimstrips will be backfilled with mine waste materials. Backfilling work will be accomplished in accordance with the back filling sequence approved by the Professional Engineer. In general, radioactive material will be confined between layers of relatively less radioactive or non-radioactive waste material to reduce the radiation levels to meet the Program's radiological clean-up recommended guidelines. Highwalls will be eliminated by backfilling the open pits or by reducing the highwall slopes to 3 H : 1 V or flatter, except where the natural adjacent slopes will not allow it. The 2 portals will be closed with 6-feet thick reinforced polyurethane foam plugs with a outer backfill of non-radioactive earth cover to protect it from degradation by ultraviolet rays. The 8 vertical shafts will be first backfilled with mine waste and then closed with polyurethane foam (PUF) plug, if necessary. The radioactive water inside the openpits will be eliminated by the backfill operation. Radioactive emission will be eliminated or greatly reduced. Surface runoff will be diverted away from the reclaimed areas, and the reclaimed surfaces will be graded and contoured to blend with the surrounding topography.

The Program has obtained a $573,305.00 federal project grant from the Office of Surface Mining Reclamation and Enforcement (OSMRE), Albuquerque Field Office (AFO) to implement a

reclamation project to accomplish the proposed action stated in this Environmental Assessment. The Program requests OSMRE AFO Director to issue an Authorization To Proceed with the proposed reclamation project.

B. NEED FOR THE PROPOSED ACTION:

The need for the proposed action stems from uranium mining that took place in the Cameron area in the 1950's and 1960's that left open uranium pits without adequate reclamation. These AML sites continue to degrade the environment, prevent and damage the beneficial use of land and water resources, and endanger the health and safety of the Navajo Nation public and its visitors to this scenic area encompassed in the larger Painted Desert region of northern Arizona. Through interviews of the land users during the collection of Consent to Entry for Reclamation, the Program staff was advised by the land users and homeowners living in the Cameron AML area of property loss due to the muddy conditions within the open pits. Livestock have become bogged down in the clayey mud inside the openpits, and if not saved by owner or others, the animals die or become prey to predators. The Cameron AML Reclamation Project 5 will address all the physical and environmental hazards mentioned earlier to fulfill the goals and objectives of SMCRA and the Navajo Nation's Abandoned Mine Lands Reclamation Plan.

C. ALTERNATIVES CONSIDERED:

Alternative 1: Issue an authorization to proceed with the proposed project.

Under this alternative, the OSMRE, AFO Director would issue a Finding Of No Significant Impact (FONSI) for Cameron AML Reclamation Project 5 using Alternative 1 to accomplish the goals of the proposed action and authorize the Program to utilize the budgeted funds for this purpose.

Portals, vertical shafts, and rimstrips will be reclaimed as described above. Backfilling of openpits will involve selective handling after characterizing the waste material into radioactive and non-radioactive piles. Wastepile materials with little or no radioactivity will be used as a buffer on and above the pit floor. Radioactive wastepile material will be "sandwiched" between the buffer zone and the top layer of wastepile material with no or near-background radioactivity. Selective handling is based on radiological surveys of the sites prior to and during construction and approved by the Program's Health Physicist. Post-reclamation radiological surveys will be conducted to determine if there are any radiological "hot spots" left. If there are any, additional layer(s) of clean material will be put on these areas to reduce or eliminate the "hotspots." All work will be done in compliance with the Programs "Health Physics and Instrumentation Monitoring Plan".

Diversion berms and ditches will be constructed, as needed, to divert surface water runoff away from reclaimed areas. All final grades and slopes will be 3 H : 1 V, unless adjacent natural topography will not allow it. Existing access roads leading to each project area will require upgrading to facilitate the transport of mine waste material, supplies, fuel, equipment, and personnel. Roads that are no longer needed will be removed at the completion of the reclamation work.

At the time of final grading, dozer tracking/roughening, terracing and scarification of the reclaimed surfaces will be done to minimize potential rill erosion, break up long slopes, and facilitate deposition of windblown sand.

Alternative 2: Do not issue an authorization to proceed with the proposed project [No Action].

Under this alternative, the OSMRE, AFO Director will disapprove the proposed action described under Alternative 1 or even the Alternative 3 described later and thus the proposed reclamation construction work cannot be implemented. As a result all the Priority 1, 2, and 3 type physical hazards and environmental degradations described above will continue to inflict the Navajo people, their livestock, wildlife, and the general public who visit the AML sites.

In addition, the **No Action** alternative will not eliminate the Priority I safety hazards, nor reduce the environmental degradation that is incidental to the radioactive nature of the wastepiles and the stockpiled ore. Since pastoralism is the predominant lifestyle of the local residents, access into and subsequent visits to the extremely hazardous abandoned open pits will continue. The site features will continue to degrade the scenic vistas.

The conditions of the portals, vertical shafts, dangerous highwalls, dangerous polluted impoundments, and water and air pollution from the radioactive wastepiles will worsen with time. The highwalls will continue to slough and crack generating voids and overhangs creating instability. The steep and unstable wastepiles will continue to erode and contaminate surface water runoff, stream-beds and downstream bodies of water.

Alternative 3: Other reasonable alternative(s).

As Alternative 3, only one other alternatives which has been considered for this project is the closure of the 2 portals and 8 vertical shafts (Priority 1 hazards) by backfilling or PUF plugs thus leaving the openpits, rimstrips, and the radioactive wastepiles untouched. This alternative, though less expensive, will not address all the physical hazards and environmental degradations will continue. This will not return the affected land to effective and beneficial use.

D. AFFECTED ENVIRONMENT:

1. General Setting

The area around Cameron was intensively explored for uranium in the 1950's and 1960's, resulting in the development of over 100 uranium mines. Of these, 85 were developed and registered some production of uranium ore. Ten (10) of these mines are on private, state owned, or other federally owned lands. The remaining 75 inactive uranium mines are on the Navajo Nation's land in the Cameron area which are being reclaimed progressively by the Cameron series of AML projects.

The Cameron AML District occupies a portion of the broad valley between the Ward Terrace and the East Kaibab Monocline in North-central Arizona. The district straddles the Little Colorado River, which is ephemeral in this reach. The river runs from the southeast to the northwest in this reach.

The location of the AML sites are shown on the Location Map. The sites except the Marble Canyon site (NA-0101) are approximately 25 miles east of the Grand Canyon, and 50 miles north of Flagstaff, AZ. These areas receive an annual rainfall of about 5.13 inches (Reichenbacher, 1986). As a result, vegetation is sparse and developed soils are negligible or nonexistent. Ground surface consists mainly of weathered rock (shale) outcrops, resistant rock (sandstone) outcrops, eolian dune sands, and alluvial deposits in ephemeral washes. The sites NA-0109 and NA-0110 are in the bentonitic clay and finely laminated sandstone/mudstone layers of the lower Petrified Forest Member of the Chinle Formation. The sites NA-0101 through NA-0104, NA-0106 through NA-0108, and NA-0121 are located in the Shinarump Member and the Sandstone/Mudstone Member of the Chinle Formation. Most of the surface material around the actual pits is heavy clay, weathered from the shale of the Chinle Formation.

Native grasses and plants are established in the eolian sands and in other areas where there is cover to provide protection for the developed soils. The washes and other riparian areas have been colonized by three exotic invader species, tamarisk (*Tamarix chinensis*), camelthorn (*Alhagi camelorum*) and Russian thistle (*Salsola* spp.).

At the mine sites, the ground surface is invariably barren rock and clay. Due to the arid conditions of the region and the nature of the waste rock, little natural revegetation has occurred. Each mine site consists of a pit or surface excavation, and one or more associated wastepiles. The wastepiles consist of clay and/or overburden sandstone that was removed from the mine in order to reach the ore. Associated stockpiled protore piles, mineral-bearing rock deemed too costly to process are usually deposited near the site.

The reclamation work is expected to take about 5 months to complete. After reclamation, future land uses of the project area will include wildlife habitat, land for livestock grazing, and scenic vistas.

2. Other Affected Resources, including Special Areas of Consideration

a. Historic and Cultural Resources: Cultural resource issues in the area are represented by historic and prehistoric use by Native Americans (See archaeological report). The data collected for the archaeological and ethnographic reports has served to document the full extent of historic resources and to obtain approval of "No Effect" from the Navajo Nation Historic Preservation Office. At site NA-0121 paleontological resources are present.

b. Hydrology: Due to low precipitation, the openpits are basically dry. The depth to the regional groundwater table is presumably 700 feet. No prominent wash or river flow through any of the sites.

c. Vegetation: The vegetation type is described as Great Basin Desert scrub of the shadscale series (Brown, 1982). The area is a cold temperate desert in the rain-shadow of the San Francisco Peaks, Coconino Plateau and the Kaibab Plateau.

The dominant types of vegetation in the area include: shadscale (*Atriplex confertifolia*), broom snakeweed (*Gutierrezia sarothrae*), camelthorn (*Alhagi camelorum*), Indian ricegrass (*Oryzopsis hymenoides*), blue grama (*Bouteloua gracilis*), Hopi blanket flower (*Gaillardia pinnatifolia*), sunflower (*Ilianthus heliardus*), annual buckwheat (*Eriogonum divaricatum*), Mormon tea (*Ephedra spp.*), yucca (*Yucca spp.*), tamarisk or salt cedar (*Tamarix chinensis*), rubber rabbitbrush (*Chrysothamnus nauseosus*) and prickly pear cactus (*Opuntia spp.*) (Chischilly, 1993). At the mine sites, there is no hydric soil present, only mineral soil. Vegetation in the area is largely limited to areas where eolian deposited soil is available and in the flood plains of the washes that drain the area.

The AML sites have no Wetland value. For further details, please refer to the Biological Evaluation Report.

d. Fish and Wildlife Resources:

1). Threatened and endangered plant or animal species (T&E): No Threatened or Endangered plant or animal species were found during the recent biological survey of the AML sites except a plant called *Amsonia Peeblesii* (Peebles blue-star) at site NA-0106 and NA-0108. Avoidance measures will be taken to protect this plant and the Department Biologist will mark this plant during construction.

2). Other wildlife in the area: There is abundant wildlife in and around the project sites. The wildlife includes native species and migratory species. The native wildlife that can be found are those plants and animals that are adapted to the temperate cold desert habitat of the area. In the wintertime, migratory species visiting from the northern climes can also be found.

e. Soils: There are no areas within or adjacent to the project sites that are considered prime and unique farmland requiring protection under the Farmland Protection Policy Act.

f. Recreational resource values: The project areas are included in the Painted Desert scenic area that extends from north of Cameron to the southeast to the Petrified Forest National Park. Other scenic areas near or adjacent to the project area include the San Francisco Peaks to the south, the Grand Canyon National Park to the west, and Little Colorado Gorge Tribal Park, also west of Cameron.

g. Air quality (Clean Air Act): The project area is not located in any known special air quality zones. The air quality is excellent, except when the wind blows dust thereby interfering with visibility.

h. Noise: The environment where the project sites are located is in an area of quiet rural solitude. Noise from automobile traffic can be heard from nearby highway 89. In the southern reaches of the project is a nearby gravel pit with diesel truck and crusher facility noise.

i. Topography: The elevation, near and around the project sites range from 4,026 to 4,411 feet above sea-level, and local relief in the area seldom exceeds 100 feet. The project sites east of the Little Colorado River are characterized by blue, gray and red mudstone, and tan and gray sandstone that are part of the lower part of the Petrified Forest Member of the Chinle Formation (Kirby, et al., 1992).

j. Land Use and Other resources: Currently, predominant land use is ranching/grazing with some tourism. The unincorporated community of Cameron, Arizona is the local center of commerce and social and cultural activities. The population of Cameron is approximately 1,700. Cattle ranching, sheep grazing, farming efforts and crafts manufacture are the predominate self-employment efforts. A small percentage of the Cameron area workforce is employed locally or in nearby towns. Major employers include the Bureau of Indian Affairs, Indian Health Service, the Navajo Nation, the local Coconino County and Arizona State governmental agencies, and private tourist-oriented businesses.

E. ENVIRONMENTAL IMPACT OF THE PROPOSED ALTERNATIVES:

Alternative 1: Issue an authorization to proceed with the proposed project.

1. **Resource Values:**

a. Historic, Cultural Resources, and Paleontological: According to the attached archaeological survey conducted by the Navajo Nation Archaeology Department, this project will have no effect on any of these resources or properties. Furthermore, paleontological monitoring and salvaging will take place during construction work at site NA-0121. The resources found will be cataloged and displayed at the Museum of Northern Arizona.

b. Hydrology: Using the proposed method of reclamation, the wastepiles with elevated levels of radioactivity and the stockpiled protore will be confined (sandwiched) between layers of relatively less radioactive or non-radioactive waste material; this will reduce the potential for radioactive particles becoming suspended in the runoff and sheet flow, thus reducing the contaminants in the feeder drainages of the Little Colorado River. The regional groundwater table being very deep in the project areas, reclamation work will not affect the groundwater.

The only flood-plain near the project area are those of the Little Colorado River and, to a smaller extent, the washes that drain into the Little Colorado River. They will not be affected by the project.

c. Vegetation: According to Biological Evaluation report, there will be no negative impact upon any plant species of concern in the vicinity of the project site. There will be no attempts made at revegetation of reclaimed sites due to costs and the poor quality of the soil. However, included in the final grading, shallow indentations will be left in the soil. This will help retard rill erosion on long slopes and will possibly be a place for eolian deposition of soils and in turn plant roots can take hold and assist "Mother Nature" in her revegetation.

Fish and Wildlife Resources: According to the Biological Evaluation report, no T&E species of concern were found in the project areas; thus there will no negative impact on any T&E species. Also, since the sites are small, there will be no to very minor short-duration negative impact on other wildlife.

e. Soils: Since, there are no known Prime and Unique Farm Lands in the project area, there will be no negative impact on this resource.

f. Recreational Resource Values: The unsightly disturbance caused by mining activity will be eliminated allowing for the scenic vistas to be returned to its more natural form. The visual beauty of the area will be enhanced. The beneficial impact will be minor in the short and long term, for the project will enhance the natural beauty of the landscape.

g. Air Quality and Noise: During the period of construction, the noise level and the dust in the

air of the area will be elevated. The increased noise will be restricted to the area where construction is taking place and the dust will be controlled by dust suppression activities. Dust suppression activities will help control the airborne radionuclides. Past AML construction projects in this area have shown that the above-mentioned form of dust suppression has been effective and helps reduce airborne radionuclides. The impacts to air quality will be minor during construction and none in the long term.

h. Topography: With the backfilling of the pits and removal of the highwalls, the topography will be changed. The change will be restricted to the project site boundaries. The final grading and slopes will blend in with the natural existing slopes and drainage. The impact will be minor in the short term and negligible in the long term.

i. Land Use and Other resources: There will be no impact on current land use during construction work. The contractor that is awarded the contract to do this work will be expected to hire in accordance with Navajo Preference in Employment laws. The Navajo people will benefit from the wages to be paid and money spent at local businesses. The local Navajo Nation Chapters have passed resolutions in support of the reclamation project; hence, the wishes of the local residents and community leaders will be met.

2. Cumulative Impacts

The cumulative impacts of Cameron AML Reclamation Project 5 will be beneficial with more safe land being made available for grazing. The unsightly features of abandoned mine lands will be removed and the scenic vistas, which are part of the Painted Desert, will be enhanced. The visiting public, local citizens, livestock, and wildlife will be safe from the dangers of abandoned mines at the reclaimed sites. So far three AML projects have been completed in the Cameron area. Thus the overall impact due to this proposed project will be cumulatively beneficial.

Alternative 2: Do not issue an authorization to proceed with the proposed project (No Action).

1. Resource Values: Under this alternative, the cultural, paleontological, and historic values will not be impacted. The historical and cultural values of the paleontological resources will not be realized and will be lost in time due to the natural forces of weathering. The physical hazards and the environmental degradations (radionuclides etc.) will remain the same and continue to impact water quality and supply values due to surface runoff, and wildlife and livestock will continue to be impacted by their use of the impounded water and the potential for delayed health effects will increase with time. The fish and wildlife resources will remain the same and continue to be impacted by the hazards of the AML features described earlier. The scenic quality of the area will continue to be impacted by the unsightly abandoned mine features; the impacts of the AML

features left unreclaimed may eventually return to a state of natural quality induced by natural forces, but this will take many, many years. This alternative will be contrary to the wishes of the voting members of the local chapters and the Navajo Nation since this alternative will not address present hazards associated with the AML sites. The economic benefits from the project to the Navajo Nation will not be realized.

2. Cumulative Impact: The overall cumulative impacts from **Alternative 2** will be negative and progressive as the hazardous conditions and the environmental continue to degrade over time.

Alternative 3: Approve a differently-designed construction project.

1. Resource Values: Under this alternative, i.e. partial reclamation, some of the safety hazards will be eliminated but the rest of the hazards and the environmental degradations will continue. This alternatives will not return the affected land safely for beneficial use and will not be a permanent solution to the problems.

2. Cumulative Impacts: The cumulative impacts will be similar to the impacts of **Alternative 2.** This alternative is not acceptable to the Navajo Nation.

F. SUMMARY:

The Navajo Abandoned Mine Land Reclamation Program, acting on behalf of the Navajo Nation, prefers to implement the proposed reclamation project per **Alternative 1** of this document. The reclamation plan under Alternative 1 will reclaim the affected lands, effectively address the affected resources that have been discussed in this document, and will effectively mitigate the negative effects on resources. Alternative 1 is fully supported by the communities, the local chapters and the Navajo Nation government. In conclusion, the Navajo Nation requests that the OSMRE AFO Director issue a Finding of No Significant Impact to implement reclamation under Cameron AML Reclamation Project 5 using the preferred alternative.

G. PERSONS AND AGENCIES CONTACTED TO ASSIST IN THE PREPARATION OF THE ENVIRONMENTAL ASSESSMENT:

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I. REFERENCES

_____, 1987. "TC-3360 Final Report: Preliminary Assessment, Cameron Uranium Mines, Navajo Reservation, Arizona." Prepared for U.S. Department of the Interior, Bureau of Indian Affairs, Washington, D.C. Tetra Tech, Inc., Bellevue, Washington.

_____, 1992. "Environmental Assessment Cameron Project 1, Abandoned Mine Land Reclamation Project, Coconino County, Arizona." Prepared by Navajo Abandoned Mine Land Reclamation Department, Tuba City Field Office. Tuba City, Arizona

_____, 1994. "Health Physics and Instrumentation Monitoring Plan." Navajo Abandoned Mine Land Reclamation Department, Window Rock, Arizona.

Brown, David E., 1982. Desert Plants: Biotic Communities of the American Southwest- United States and Mexico. University of Arizona Press. Vol 4, Nos. 1-4.

Chenoweth, William L., and R. C. Malan, 1973. The Uranium Deposits of Northeastern Arizona. New Mexico Geological Society Guidebook of Monument Valley and Vicinity, pages 139 - 149.

Chischilly, Steven, 1993. "Threatened and Endangered Species and Biological Evaluation for: Navajo Abandoned Mine Land Reclamation Department Project: Cameron Projects III and IV: Abandoned Uranium Pits." Navajo Fish and Wildlife Department, Biological Survey Services.

Thompson, Kerry F., R. M. Begay, 1999. "An Archaeological Survey of the Cameron 5 AML Reclamation Project near Cameron, Arizona".

Martinez, Darryl, 1999. "Biological Evaluation: Cameron AML Reclamation project 5".

Cooley, M.E., Harshbarger, J.W., Akers, J.P., Hardt, W.F., 1969. Regional Hydrology of the Navajo and Hopi Indian Reservations, Arizona, New Mexico and Utah. U.S. Geological Survey Professional Paper 521-A.

Gregory, Herbert E., 1917. "Geology of the Navajo Country, A Reconnaissance of Parts of Arizona, New Mexico, and Utah." U.S. Geological Survey, Professional Paper 93. Government Printing Office, Washington, D.C.

Hiipaaka, David W., 1984. "Report on the Cameron Open Pit Uranium Mines." United States Public Health Service, Tuba City Service Unit, Tuba City, Arizona.

Kirby, Randy E., P. R. Luttrell, and M. Morales, 1991. "Results of a Paleontologic Field Survey of Six Abandoned Uranium Mine Sites in The Navajo Nation Near Cameron, Arizona." A survey prepared for Navajo Abandoned Mine Land Reclamation Department. Museum of Northern Arizona, Flagstaff, AZ.

Longsworth, Steven A., 1994. "Geohydrology and Water Chemistry of Abandoned Uranium Mines and Radiochemistry of Spoil-Material Leachate, Monument Valley and Cameron Areas, Arizona and Utah." U.S. Geological Survey, Water-Resources Investigations Report 93-4226. Tucson, AZ.

Reichenbacher, Frank W., 1986. "Status Report: Amsonia peeblesii." R. E. Woodson. F. W. Reichenbacher & Associates, Tucson, AZ.

Scarborough, Robert B., 1981. Radioactive Occurrences and Uranium Production in Arizona.

Department of Energy Open File Report GJBX143(81). Arizona Bureau of Geology and Mineral Technology, Geological Survey Branch, Tucson, Arizona.

OSM-EIS-11, Final Environmental Impact Statement, Approval of State and Indian Reclamation Program Grants Under Title IV of the Office of Surface Mining Control and Reclamation Act of 1977, Office of Surface Mining Reclamation and Enforcement (OSMRE), U.S. Department of Interior, Washington, D.C.

Surface Mining Control and Reclamation Act of 1977, Public Law 95-87, Title IV, Abandoned Mine Reclamation; Objectives of Fund [30 U.S.C. 1233], Section 403; Filling Voids and Sealing Tunnels [30 U.S.C. 1239], Section 409 (c).

J. APPENDICES

Appendix A: AML Sites Location Map

Appendix B. Archaeological Report

Appendix C. Cultural Resources Clearance Forms

Appendix D: Biological Evaluation Report

Appendix E. Consultation Letters

Appendix F: Land User Consents.